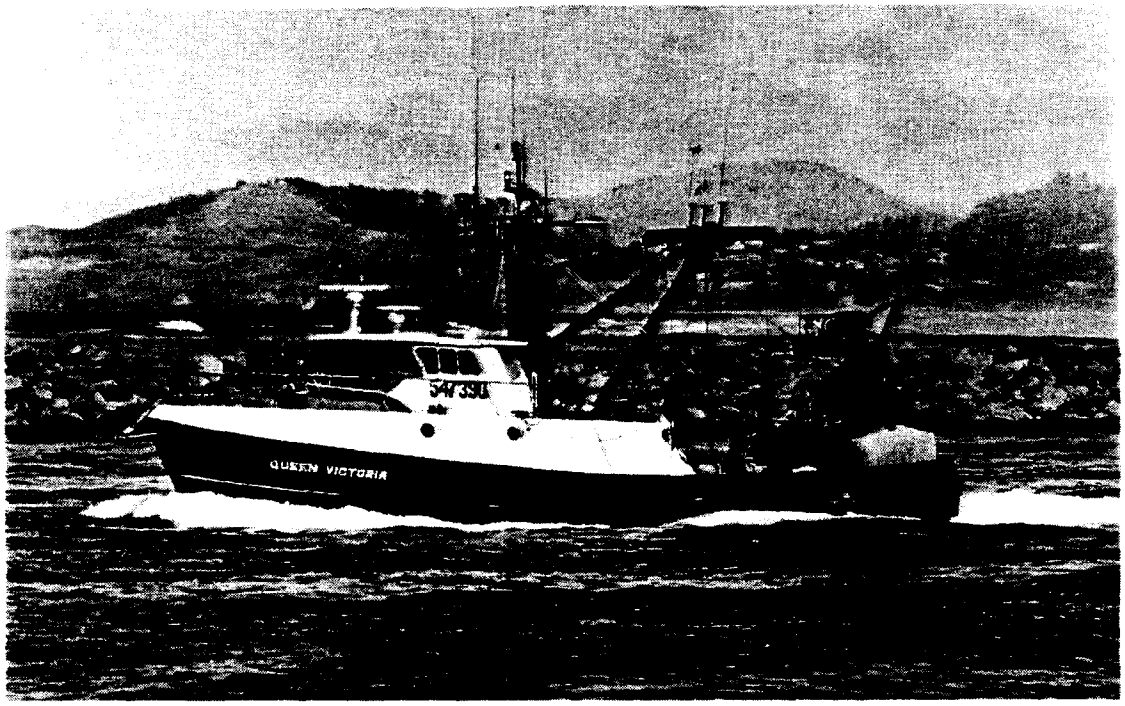
PACIFIC COAST REGIONAL

COASTAL ZONE MANAGEMENT PLAN*



by

Richard Hildreth, Principal Investigator
Biliana Cicin-Sain
Marc Hershman
Jon Isaacs

December 31, 1989

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Cover photo courtesy of Oregon Sea Grant.

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I. INTRODUCTION

The intent of grants awarded under Coastal Zone Management Act (CZMA) Section 309 (16 U.S.C. 1456b) is to improve interstate planning in coastal management through coordination between coastal states and between federal and state entities. The Section 309 Interstate Grant Program is administered by the National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management (OCRM). OCRM's regulations for the 309 program are located at 15 CFR Part 932. OCRM's spring 1989 309 guidance document is included as APPENDIX A.

The coastal zone management programs of the four Northeast Pacific Ocean states were among the first to receive federal approval. The programs are now 10-12 years old, but the state coastal managers only recently have begun planning, coordinating, and implementing their research and management efforts with an eye toward regional needs. While each state needs to formulate its own approach to development and management in its coastal zone, regional considerations must also play a prominent role. From an economic perspective, development of coastal and ocean resources off one state can affect important sectors of the economies of the other coastal states in the region, both positively and negatively. From an environmental point of view, planning for the conservation and management of living marine resources and their habitats is often best approached from a regional basis. Too, the risks associated with some types of ocean and coastal development in one state can threaten sensitive areas in the coastal zones of other states. Considering and acting on these kinds of regional considerations require regional approaches to coastal resources management and the formation of multi-state planning and decision-making mechanisms. Regional management programs can achieve economies of scale on issues common to the coastal ecosystem; regional planning can focus resources on the most crucial needs; and regional research can provide a permanent regional data base of comprehensive resource management information. Beyond the requirements of the CZMA Interstate Program, there is an opportunity to improve coordination among the four states' CZM activities and begin long-range planning of interstate projects.

This 309 project's goal was to produce a comprehensive, long-range coastal zone management plan for the Northeast Pacific Ocean region which identifies research, planning, and coordination projects addressing priority regional coastal zone management issues for funding through the 309 program and other available state and federal sources. That plan is set forth in this report and summarized in Table 3 below. The Congressional reduction of 309 appropriations from past levels of about $1 million per year to $400,000 for FY 90 emphasizes

the need to think broadly and creatively in planning for interstate coastal zone management.

For purposes of section 309 funding, OCRM has divided U.S. coastal areas into regions, with the Northeast Pacific region consisting of California, Oregon, Washington, and Alaska. The Northeast Pacific 309 program is administered on behalf of the four states by:

Earle Buckley, Director
National Coastal Resources Research
and Development Institute (NCRI)
Hatfield Marine Science Center
2030 S. Marine Science Drive
Newport, Oregon 97365
(503) 867-3300

A regional CZM board consisting of the four states' coordinators for 309 grants meets periodically to select west coast projects for which 309 funding will be sought from OCRM by NCRI.

This project's investigators and the 309 coordinators for each of the four states are:

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II. PROJECT METHODOLOGY

The project team relied heavily on three mechanisms to prepare a plan: a project questionnaire; in-state meetings held in each of the four states attended by representatives of state, federal, and local government, industry academic institutions and other potential users of marine and coastal resources; and a regional workshop, attended by three to four representatives from each state, that further refined and set priorities for addressing the management issues raised in the first two mechanisms. In the project questionnaire (see APPENDIX B) mailed to state agency personnel, regional federal officials, marine academics, and user and public interest group representatives in each state, and at an "instate meeting" held in each state (see APPENDIX C) comment was sought on priority issues preliminarily identified by the investigators including: (1) coastal wetlands; (2) shoreline protection; (3) public access; (4) aquaculture facility siting; (5) integrating new approaches to estuary planning and management into coastal zone management; (6) state and regional approaches to coastal water quality; (7) the CZM implications of offshore development in state and federal waters; (8) CZM's role in implementing MARPOL Annex V's requirements for reducing vessel discharges of plastics and garbage.

Also through the questionnaire and the four instate meetings, the investigators sought to: (a) identify and prioritize coastal resource management problems that are common problems, i.e., present in more than one state in the four-state region, or shared problems, i.e., two or more states are physically, economically, or otherwise linked to

the problem; (b) identify state and federal agencies with coastal responsibilities and their long-term goals and objectives relative to management of those problems; (c) identify gaps or duplication in those agency responsibilities; (d) identify information, data, study, and research needs relevant to the common and shared problems; (e) categorize those needs as "immediate" (implementation within 1-2 years with budget requirements and potential funding sources), "mid-term" (3-5 years), and "long-term" (5-10 years); and (f) examine the computer systems of each state to determine the feasibility of linking the systems for easier data and information exchange regarding common and shared coastal resource management problems.

From the questionnaire responses and instate meetings, a plan outline was developed for review at the project's Regional Workshop which was held September 10-12, 1989 in Asilomar, California and attended by three or four state agency representatives from each of the four states, NCRI's director, the four project investigators, and a Sea Grant marine extension faculty member. The plan outline, workshop agenda, and participants list are included in APPENDIX D.

A draft plan was mailed for comment to all meeting and workshop participants and questionnaire respondents in the four states. Based on comments received, this final plan was submitted to NCRI on December 31, 1989.

NCRI and the project investigators appreciate very much the efforts of all those persons who participated in this regional planning process.

III. RECENT REGIONAL USES OF 309 FUNDS

Past 309 projects in the region as listed in TABLE 1 have emphasized the Columbia River as the region's most significant interstate estuary. Several of the Columbia River projects have addressed water quality issues. In November 1989 the governors of Oregon and Washington withdrew their nomination of the Columbia River estuary for designation as an estuary of national significance under the federal Environmental Protection Agency's National Estuary Program (NEP) and proposed a joint state funded water quality program instead. OCRM's spring 1989 309 guidance document gives priority to 309 projects affecting estuaries where management conferences have been convened as part of the National Estuary Program. However, a more specific role for the 309 program in NEP estuaries remains to be articulated. The other west coast NEPs, Puget Sound, San Francisco Bay, and Santa Monica Bay are not interstate. A fiscal year 1989 309 project with Marc Hershman as Principal Investigator will examine the respective

DIRECTORY OF WEST COAST CZM 309 PROJECTS

CZ85	Columbia River Estuary Interstate Management Plan (Fox, 1986) COMPLETED
CZ85	Interstate Living Marine Resource Information Project: Marine Fishes and Invertebrates (Bottom, 1986-1987) COMPLETED
CZ86	Columbia River Estuary Interstate Management (Fox, 1986-1987) COMPLETED
CZ86	Sea Otter Population Assessment and Ecology (Jeffries, 1986-1988) COMPLETED
CZ86	Effects of Acoustic Signals on Crustaceans (Knaster, 1986-1988) COMPLETED
CZ86	Organic Wastes in High Energy Nearshore Oceanic Ecosystems: Fates and Effects (Gonor, 1986-1988) COMPLETED
CZ87	Columbia River Estuary Hazardous Waste Spill Contingency Plan (Fox, 1987-1988) COMPLETED
CZ87	Feasibility of Remote Sensing to Identify the Aquaculture Potential of Coastal Waters (Paust, 1987-1988) COMPLETED
CZ87	Estimation of the Carrying Capacity of the Coastal Environment for Juvenile Salmon (Francis, 1987-1989)
CZ87	Fishery Resource Mapping (Starr, 1987-1989)
CZ88	Regional Sediment Dynamics and Shoreline Stability in Littoral Cells of the Pacific Northwest (Peterson, 1988-)
CZ88	Columbia River Estuary Interstate Management: Regulatory Framework for Evaluating Sediment Quality in the Columbia River Estuary (Barnes, 1988-1989)
CZ88	Improving State and Federal Ocean Governance Capabilities in the Northeast Pacific (Cicin-Sain & Hildreth, 1988-1989)
CZ88	Comprehensive Regional Ocean and Coastal Resources Management Planning (Hildreth, 1989)
CZ89	Effectiveness of Mitigation Measures Used to Resolve Conflicts Between Offshore Industrial Development and Fisheries (Laychak, 1989-)
CZ89	The Contribution of Coastal Zone Management Programs to Improved Coastal Water Quality (Hershman, 1989-)
CZ89	Columbia River Estuary Wetland Management Planning Framework (Barnes, 1989-)

TABLE 1

roles and relationships of the various federal initiatives regarding coastal water quality and perhaps shed further light on the relationship between NEP and the 309 program.

To date no 309 project has dealt with the region's other interstate river, the Klamath, whose headwaters are in Oregon but whose estuary is in California. Also, no previous project has involved any of the region's National Estuarine Research Reserves (NERR) established under Coastal Zone Management Act section 315; OCRM's spring 1989 309 guidance document now gives priority to estuarine research projects which use the NERR system. The potential for coordinated interstate research in the region's four NERR's, Padilla Bay, Washington; South Slough (Coos Bay), Oregon; Elkhorn Slough and Tijuana River, California, none of which is in an interstate estuary, should be explored by the regional CZM Board. Appropriate amendments to this plan could be made pursuant to the plan amendment procedures set forth below.

Most of the 309 projects listed in TABLE 1 have not been closely integrated into agency operations; generally, they have produced research reports or plans. Approaches to changing this situation are discussed further below.

IV. A GENERAL FRAMEWORK FOR TARGETING REGIONAL PROBLEMS

West coast 309 projects involving resources shared by more than one state generally are limited to the Columbia River, in which the boundary between Oregon and Washington is located, and contiguous state and federal Pacific Ocean waters stretching from Alaska to California, which can be viewed as a north-south river linking the region. Thus this plan also projects continuing emphasis in the region's 309 program on coastal management problems that are faced by more than one state in the region even though they do not involve a shared interstate resource. For such common problems, a regional approach often makes sense where: (1) federal policy encourages uniformity among the states in responding to the common problem; (2) the common problem is new or emerging and there is a high degree of uncertainty creating a need for definition and making consideration of alternative responses timely; or (3) the common problem is of such high priority that action among the states can improve or expedite resolution of the problem. These criteria provided the framework for discussion of common problems confronted by the region's coastal managers at the project's regional workshop.

As summarized in TABLE 2, the problem areas in which priorities were established (as discussed further below) included: (1) coastal wetlands; (2) coastal water quality; (3) coastal hazards; (4) shoreland use allocations; and (5)

contiguous ocean waters. Plan elements for each of these five problem areas are set forth next in section V. Each one of these plan elements describes the issues to be resolved and priorities for their resolution. The purpose of these plan elements is to provide assistance to the 309 program and other relevant federal and state programs in utilizing program resources and funds to effectively address priority regional coastal management issues. A bibliography for each of the plan elements is included in APPENDIX E. Implementation of the plan elements is summarized in TABLE 3 and discussed further in section VI below.

V. ELEMENTS OF A WEST COAST REGIONAL PLAN

A. COASTAL WETLANDS

The policy and practice of wetlands protection is receiving increased attention at all levels of government. President Bush appears committed to stronger federal policies and programs. William Reilly, Administrator of the federal Environmental Protection Agency, is formulating specific proposals. The National Wetlands Policy Forum proposed a variety of reforms, including a no-net-loss policy, in its report at the end of 1988 which received considerable national attention. President Bush has established a federal Wetlands Interagency Task Force to examine implementation of a no-net-loss policy and signed December 1989 legislation providing $70 million over four years as federal matching funds for wetlands purchase and preservation. EPA has established a grants program under Clean Water Act section 104(b)(3) to support refinements and enhancements to state wetlands protection programs (see 54 Federal Register 51470 (Dec. 15, 1989)). NOAA has established a working group to develop policy and guidelines for achieving no-net-loss of coastal marine wetlands. The 1989 Oregon legislature enacted major wetlands planning legislation and Washington has established a state Wetlands Policy Forum to draft a wetlands protection bill for the next legislative session.

In each of the instate meetings, and at the regional workshop, wetland protection issues were discussed in detail. The two aspects that stood out prominently were wetlands mitigation, which itself involves a variety of sub-issues, and identification and delineation of wetlands. A variety of related issues were mentioned that often occur in connection with issues of wetland protection: delegation of Section 404 authority to the states, dredged material management, cumulative effect of development on wetlands, and effects of accelerated sea-level rise on wetland areas.

TABLE 2
West Coast Regional Coastal Zone Management Workshop
Asilomar, California
September 10-12, 1989

REGIONAL PROBLEMS	Priority		Time Frame			Funding		Comments
	High	Low	Short	Med.	Long	Other	309	
WETLANDS (no-net-loss, standards, monitoring, restor. creation, banking)	x			x				Common problem; CREST FY 89 309 project
WATER QUALITY								
NPS & CZM	x	AK		x		x	x	Hershman FY 89 309 project;
Estuary Planning	x	AK				x	x	EPA/NEP/NWC
Marpol V	x			x Info. Exch.		Sea Grant 306/SK		WA Marine Debris Task Force, WA DNR Lead
OCEANS								
Oil Spill/Trans.	x			x			FY 90 309 Proposals	Shared Resource 1989 State Leg. Pending Fed. Legislation
Minimum Standards for OCS Oil & Gas Exploration & Dev.	x			x Info. Coll. & Sharing				Develop New Standards; Laychak FY 89 fisheries mitigation 309 project
Consistency Process	AK			x				Regional Directory would help
State Capacity (T.S., EEZ. & New Fed. Initiatives)	x			Info. Coll. & Sharing Inst. Develop.				
HAZARDS		x						
SHORELANDS		x						

TABLE 3

REGIONAL PLAN IMPLEMENTATION ACTIONS (numbered and dated in probable chronological sequence for each subarea, with underlined numbers indicating key future west coast 309 program roles)

PLAN ELEMENT Subarea	Research in Progress	Interstate Information Exchange	Regional Workshop	Ongoing State Policy Development	Coordinated Interstate Management	Federal-State Coordination	Interstate Compact (309)
COASTAL WETLANDS							
Delineation	Barnes (309)	1. 1990		AK GOV; BCDC; CCC; OR DSL; WA DOE		2. 1991	3. 1992
Mitigation Techniques Standards Monitoring Enforcement		1. 1990	2. 1991	AK GOV; BCDC; CCC: CCCY; OR DSL; WA DOE	4. 1993	3. 1992	
WATER QUALITY							OR/WA Col. R.?
NPS	Hershman (309); Wolniakowski			OR DEQ; WA DOE; CWQCB		1. 1991	
MARPOL		1. 1990		WA DOE; OR	2. 1991		
COASTAL HAZARDS	Griggs; Good; Hershman; Peterson; Komar	3. 1994: Atlas	2. 1993	BCDC; CCC; CCCY; WA DOE; OR DLCD, DOEN	1. 1992		
SHORELAND USE ALLOCATIONS			1. 1992	AK; WA DNR			
OCEAN WATERS			1. 1991	AK DNR; CCC; CSLC; CSEA; S.B. County; OR DLCD, DSL; WA DOE			2. 1991; w/B.C.? 11/89 WLC Resolution
Oil Spill/Transportation				AKSC	2. 1992	1. 1991	
Offshore Oil Minimum Stds.	Laychak (309)						
State Capacity (T.S., EEZ)	Cicin-Sain; Hershman; Hildreth; Knecht; WGA, CSO						
OTHER REGIONAL COORDINATION		1. 1991: Regional CZM Personnel Directory					

Abbreviations

AK	Alaska
AKSC	Alaska Spill Commission
C	California
OR	Oregon
WA	Washington
B.C.	British Columbia
BCDC	San Francisco Bay Conservation & Development Commission
CCC	California Coastal Commission
CCCY	California Coastal Conservancy
Col.R.	Columbia River
CSO	Coastal States Organization
CZM	Coastal Zone Management
DEQ	Department of Environmental Quality
DOE	Department of Ecology
DOEN	Department of Energy
DLCD	Department of Land Conservation & Development
DNR	Department of Natural Resources
DSL	Division of State Lands
EEZ	Exclusive Economic Zone
GOV	Governor
NPS	Non-point Source
S.B.	Santa Barbara
SEA	Secretary of Environmental Affairs
SLC	State Land Commission
T.S.	Territorial Sea
WGA	Western Governors Ass'n
WLC	Western Legislative Conf.
WQCB	Water Quality Control Board

High priority and immediate attention should be given to wetlands mitigation in the regional interstate CZM plan. Federal agency policies and practices regarding wetlands mitigation vary widely. A recent National Marine Fisheries Service (NMFS) survey found that the respective roles of NMFS, OCRM, and state CZM programs in avoiding or mitigating wetlands habitat losses were poorly defined and recommended specific improvements including regional mitigation project follow-up systems. The states, and in some cases sub-state entities, have developed their own approaches to wetland mitigation.

In a sense this may be healthy because a new and difficult management concept such as wetlands mitigation requires experimentation. A courageous but risky experiment can be tried by one governmental unit without exposing all to the same risk. The best practices that emerge from the "experiments" can be copied and the failures avoided.

The down side of experimentation is confusion about standards, and inefficiency due to redundant or conflicting standards. In a federal system where a single project requires review at three or more levels of government, the overlaps and conflicts can be a serious problem for the project proponent, the regulators, and the interested public.

A complicating factor is that the experimentation is occurring at a time of intense political and public pressure to protect a dwindling resource. Numerous official studies, media specials, and resource protection campaigns have successfully created a national movement and transformed the nation's perceptions about the importance of wetlands. This political and moral pressure creates a sense of urgency that spurs official action even though standards are unclear and still developing. On the west coast, important species of migratory birds use wetlands in all four states. This makes wetlands management a truly regional issue. Furthermore, throughout the region the historical loss of wetlands on public and private lands has been documented and accepted politically.

For all of the above reasons a conscious effort to compare wetland mitigation policies and practice among the four west coast states and the regional offices of key federal agencies would make sense. It could lead to better understanding of the "why" and "how" of the approach of others. With this information in hand, discussion can proceed about streamlining procedures, reconciling conflicting policies, and perhaps even standardization.

Four issues of wetland mitigation received the most discussion: the emerging no-net loss policy--what it means and

how it might be achieved; the need for mitigation standards, long-term monitoring of performance, and enforcement; the technologies of wetland restoration and creation and recent improvements and success/failure research; and the legal and administrative aspects of establishing mitigation banks. These issues are more often joined than separated, suggesting that the topic for regional review remain "wetlands mitigation" rather than one of the listed sub-issues.

The vehicle for regional attention to this issue could be a structured workshop preceded by information collection and dissemination about diverse approaches to the issues. Since regional offices of the U.S. Environmental Protection Agency, Fish and Wildlife Service, National Marine Fisheries Service, Army Corps of Engineers, and Soil Conservation Service are vitally concerned with wetlands, their participation and collaboration are warranted. And certain developers with ongoing wetland concerns, such as port agencies or other utilities, should be included. The Association of Wetlands Managers (AWM), which holds meetings on all aspects of wetland management, could assist in convening the workshop. The workshop could be modeled upon the series of "no net loss" workshops AWM is coordinating in other regions of the country between November 1989 and May 1990. One objective of a west coast workshop would be to evaluate best ways for regional collaboration to continue in the future, and how it might be supported.

The second wetlands issue that should receive high priority and immediate attention is wetland identification and delineation. A manual for wetlands identification and delineation was published in January 1989 by four of the above federal agencies, but its use and interpretation continues to raise questions among wetland managers at all levels of government. This issue is not as pervasive or as politically potent as the wetlands mitigation issues discussed above, but could benefit from deliberate attention at an appropriate level of effort. This problem should be addressed by regional coastal managers through collaboration with the federal agencies that published the document. In addition, a fiscal year 1989 309 project with Mark Barnes, Director of the Columbia River Estuary Study Taskforce (CREST), as Principal Investigator will identify and map wetlands in and adjacent to the Columbia River estuary and establish environmentally sound wetland management strategies for the region.

Other wetland-related issues--delegation of federal Clean Water Act section 404 authority to the states, dredged material management, cumulative effects, and effects from sea level rise--received lower priority and mid-term to long-term ratings for 309 consideration. However, they should be monitored by NCRI and the regional CZM board since changes in priority may be warranted in the future.

B. COASTAL WATER QUALITY

Ever since the CZMA was first enacted in 1972, administering officials have been uncertain about how far CZM programs may go to control coastal water quality. On the one hand, a key purpose of the CZMA is to control land and water uses to protect important coastal resources, including marine resources. On the other hand, the federal law specified that CZM programs were to incorporate the water quality control provisions of existing federal law, the Clean Water Act (CWA), and the state and local laws enacted pursuant to the CWA. State coastal programs have responded in varying ways to the problems of coastal water quality. Some states have actively used the coastal program to develop shoreland use standards that address non-point sources (Washington and South Carolina, for example), while other states have done little in this area, deferring to other agencies. Virtually all agree that good shoreland use practices can contribute to better coastal water quality and for that reason CZM can make important contributions if conflicts and overlaps in agency responsibilities can be resolved.

The problems of coastal water quality degradation have received a great deal of attention in recent years. For this reason there are now a number of bills in the 101st Congress that would strengthen the nation's cleanup efforts. Most of these bills include an enhanced role for CZM programs in water quality improvement because degradation is linked closely with non-traditional pollution sources--agricultural and urban runoff, illegal dumping of wastes, airborne pollutants, sediments, turbulence, etc. The bills also would strengthen EPA's new program activities dealing with estuaries, non-point sources, and marine pollution.

High priority and immediate attention should be given to exploring the best ways that CZM can contribute to water quality improvement within the region. Marc Hershman's 1989 309 project will describe and characterize what is now being done by CZM programs throughout the nation in non-point source control and in estuary protection. This information can form the basis for focused regional interaction on this issue. Since three of the four states in the region are within EPA's Region 10 (Oregon, Washington, Alaska), a logical approach would be to encourage Region 10 EPA, state CZM, and state and local water quality staff to jointly undertake this endeavor. The 309 program could be a catalyst for bringing this group together. If Congress does take action, the necessity for this type of interaction will be high even though Alaska does not view the non-point source issue as requiring immediate attention. Such a regional effort on water quality would be a useful model to follow when other opportunities to pool

federal and state coastal management resources and expertise appear in the region.

In addition, one of three state pilot projects funded under EPA's Near Coastal Waters Initiative is an "Action Plan for Oregon Estuary and Ocean Waters" managed by Krystyna Wolniakowski of the Oregon Department of Environmental Quality. The methodology for improving coastal water quality developed by that project should be reviewed by the 309 program for use on a regional basis.

The implementation of Annex V of the MARPOL Convention prohibiting at-sea disposal of plastics and garbage offers a regional opportunity as well. Vessels move between the harbors of different states and common approaches to the handling of shipboard wastes in the ports may result in efficiencies for the ports and more effective compliance by vessels. The Saltonstall-Kennedy funded project to demonstrate the Port of Newport, Oregon's successful waste collection program in selected Alaska, Washington, and California ports is a start at regional cooperation that could be enhanced by the region's 309 program. Since MARPOL is largely self enforcing, such coordination and information dissemination efforts are critical to its success. All four states need to integrate their MARPOL implementation into their state's hazardous and solid waste planning processes. Washington's Marine Plastic Debris Action Plan contains many elements which could be included in a regional plan to implement Annex V. The public response to MARPOL-related efforts such as beach debris clean ups and inventories suggests there are positive political dividends for such 309 and CZM involvement with MARPOL.

A variety of other regional water quality issues were identified in the instate meetings. These were noted as important, but of a more limited and specific nature, and therefore not as high priority as the first two.

Fish processing on vessels and pollutants from aquaculture operations are becoming serious issues in water quality. Because the vessels move between states, a common approach to this problem by two or more states is suggested. For example, practices aboard the factory trawler fleet that works off Alaska but homeports in Washington, Oregon, or California could be viewed as a regional problem.

Discharge of vessel ballast waters in harbors often results in the introduction of non-indigenous species of fish and aquatic plants. Some of these "foreign" or exotic species compete successfully with local species and adversely affect local fisheries, water quality, or esthetics. A regional, national, or international approach is needed to understand

and manage this problem because of the mobility of the vessels involved.

These and related water quality problems should be monitored by NCRI and the regional CZM board. Specific action may be warranted in the future.

C. COASTAL HAZARDS

1. Background

Coastal hazards management is an important national and regional goal of coastal zone management programs. "Management" of hazards involves a variety of strategies: implementation of development controls and regulatory standards; subsidized federal flood insurance; withdrawal of federal subsidies for development in certain areas; installation of major and minor engineering works; and development of evacuation and post-disaster plans.

At the national level, coastal hazards management is largely driven by issues on the east coast and gulf coasts, areas with extensive barrier island systems, low-lying coastal plains, subsiding coasts, and intense development pressures. As a consequence, these states have been in the forefront in developing innovative responses to coastal hazards, though not without resistance and controversy.

The situation is different on the west coast. While coastal hazards management has been important in all four states, it is not as visible an issue as on the east and gulf coasts. There are problems--major storms, attendant erosion and property loss, landslides on cliffed shorelines, flooding of low-lying valleys, and the threat and periodic occurrence of earthquakes and tsunamis. The storm and erosion impacts of periodic El Ninos, such as the one that occurred in 1982-83, have also been well-documented.

However, because the west coast north of southern California is relatively less developed than the east or gulf coasts, coastal hazards cause relatively less property damage and dislocation. Neither is there extensive low-lying topography or relatively rapid subsidence here on the west coast. On the contrary, much of the west coast and Alaska is tectonically emerging, which to date has mitigated the effect of global sea level rise.

These factors--relatively less development and the geologic setting--tend to mask the increasing and cumulative impacts of development in hazardous areas along the west coast. The same factors also present west coast states with the opportunity, at least in less developed areas, to get out

in front of hazard problems to establish effective, coordinated management strategies.

2. Important Hazard Issues

Coastal hazards were discussed at each of the four instate meetings and at the regional workshop. For 309 funding purposes only, these issues were ranked low priority. Most of the region's hazard issues are common problems, that is, ones which each state is experiencing within its own boundaries. Though no shared hazard issues were identified at this time, potential exists for interstate issues within shared littoral cells at the California-Oregon border and at the mouth of the Columbia River (e.g., dredged material management).

Coastal hazards issues on the west coast can be grouped into three interrelated categories: the need for better scientific information; the need for new and improved management strategies that respond to existing and emerging issues, especially sea level rise; and the need for a more uniform, coordinated response to federal initiatives.

In general, the knowledge base of physical coastal processes in the Pacific region is primitive by comparison to many other U.S. coastal areas. The region's continental margin geology, estuarine circulation, nearshore physical oceanography, and saltmarsh dynamics are fundamentally different from the Atlantic and Gulf coasts where much research has been performed. Thus, several specific issues related to the scientific information base for management are raised. First, a clear description of how coastal processes affect each region and locale is needed by planners and managers who must routinely evaluate development and shore protection proposals. The Peterson 309 project listed in TABLE 1 which is defining littoral cells in the Pacific Northwest and sources of sand that make up the beaches there is based on this expressed need. Second, management-oriented information on the range and potential severity of shore protection structure impacts is needed, along with methods to apply that information at a given site. Finally, credible scenarios for future sea level rise on the west coast are needed, along with identification of vulnerable areas. A regional atlas and accessible data base, with priority given to vulnerable, developed areas may be one solution to this information gap.

The need for model guidelines for managing development in areas affected by coastal hazards, particularly sea level rise, was noted by Washington and Oregon. The recent sea level rise policies developed and being implemented by the San Francisco Bay Conservation and Development Commission (BCDC)

were cited as an example that might be emulated. BCDC is already working to explain its guidelines to other interested jurisdictions in California. Consultants for the Washington Department of Ecology will be developing alternative policy responses to sea level rise during the first half of 1990. Also, a study at the University of Washington by Marc Hershman and others is looking at what states and local governments throughout the U.S. are doing to incorporate the sea level rise issue into their management policies. Other studies examining the effectiveness of shoreline management policy are underway in both California (Gary Griggs, University of California, Santa Cruz) and Oregon (James Good and Paul Komar, Oregon State University). Each should provide additional recommendations on this topic.

The needs for coordinated state responses to Congressional initiatives and federal agency programs and improved state capabilities for dealing with coastal hazard issues was raised in Alaska and Oregon. Two issues in particular were noted. First was the need for reconsideration of the opportunity that the Coastal Barrier Resources Act provides for minimizing development of undeveloped bay barriers on the west coast and Alaska. West coast states have expressed little interest to date in being included in the coastal barrier system. Second was the need to work more closely with Federal Emergency Management Administration (FEMA), regarding erosion and flood management, and the U.S. Army Corps of Engineers on shore protection, beach nourishment opportunities, and other programs.

As noted above, coastal managers and others in the region tended to rank coastal hazards as low in priority for 309 funding. The consensus was that the next step should be a regional workshop to develop a more detailed plan that would identify priority regional problems and information needs and funding sources to deal with them. There was also a strong feeling that other mechanisms for communication and information sharing on coastal hazards are needed as well.

D. SHORELAND USE ALLOCATIONS

1. Introduction

From the perspective of the region's 309 program, shoreland use allocation issues appear to be of lower priority than other common problems. There appear to be two major reasons: shoreland allocation approaches and issues appear to be influenced more by local and state interactions within individual states, rather than by federal-state or interstate interactions. This limits the commonality of shoreland use allocation issues between states. Secondly, factors that would normally influence shoreland use allocation were also

covered by other plan issues, specifically water quality, wetlands, contiguous ocean resources (particularly commercial fishing and resource extraction), and coastal hazards.

Shoreland use allocation issues that were discussed were limited in number, and not usually common to all four states. The most frequently raised issue was aquaculture/mariculture facility siting (Oregon, Washington, and Alaska), followed by public access (Oregon and Washington), and fishing industry support facilities (Washington and California). Other issues included port development, subsurface lands and water surface management, dredge spoil disposal, changing settlement patterns, and rural coast industrialization. The issue of planning for use of tidelands and submerged lands emerged in the regional workshop. Discussions of shoreland use allocation often brought up the need for improved information sharing and conflict resolution. Thus shoreland use allocations is an area where the first step beyond this plan probably should be a regional workshop to further identify common problems in the four-state region and to discuss the potential for regional approaches to them.

2. Regional Needs and Priorities

With a few exceptions, the regional workshop in Asilomar reflected the relative lack of importance of shoreland use allocation compared to other issues. The question was initially raised whether the topic was more appropriate to individual state 306 programs than the 309 program. After further discussion, the following topics were addressed: aquaculture, impacts from major development projects and from natural disasters; information sharing systems; interagency and intergovernmental conflicts; and planning for uses of tidelands and submerged lands.

Needs regarding aquaculture include: development of guidelines for siting net pen aquaculture facilities and dealing with waste disposal, and evaluating the effectiveness of existing aquaculture programs. These subjects might be appropriate for information exchange supported by the region's 309 program.

Comparative studies of shoreland use conflicts would be useful to the four states. A recent example with interstate impacts is the siting a California prison facility near the Oregon border. Other needs include evaluating the impact of major disasters or of major development on shorelands to assess interagency planning and preparedness capability.

Institutional conflicts are common between agencies when dealing with shoreland use allocation issues. These include conflicts between state agencies and between state and local

government. Agencies more often face the need to respond to immediate crises, rather than having the luxury to plan for and allocate shoreland use in advance. Increased interagency and intergovernmental information exchange in advance of specific development proposals may help alleviate this problem.

Planning for use of tidelands and submerged lands should be integrated into onshore planning processes and involve adjacent landowners (a sub-regional tidelands planning process has been used in Southeast Alaska with moderate success). This issue has a bearing on state capacity to manage resources in the extended territorial sea, particularly if the federal government is willing to share resource management responsibilities in these waters. If so, developing consistent regional approaches to planning for resources development lands in the extended territorial sea, and integrating such planning into onshore planning systems, could become high priorities for support from the region's 309 program.

The highest priority appears to be development of a methodology for a unified regional approach to planning for submerged lands in the territorial sea, and the integration of such planning into onshore planning systems. Of lower priority are (1) evaluating the effectiveness of existing aquaculture programs in the Pacific coast states and the need for regional guidelines for siting net pen aquaculture facilities and dealing with waste disposal from them; (2) improving information sharing to reduce conflicts and inconsistencies between agencies involved in shoreland use allocation; and (3) assessing the current methods within the region for resolving conflicts over shoreland use allocation.

E. CONTIGUOUS OCEAN WATERS

1. Introduction

The four west coast states are very concerned about how adjacent portions of the Northeast Pacific Ocean are used. All four states have imposed moratoriums on oil and gas development in state waters extending 3 nautical miles offshore. Recent events linking the four states in contiguous ocean waters include the March 1989 Exxon Valdez spill and litigation by the states challenging the Interior Department's five-year schedule of oil and gas lease sales (see NRDC v. Hodel, 865 F.2d 288 (D.C. Cir. 1988)). The court ordered Interior to prepare a supplemental EIS evaluating the synergistic effects on migratory fish, birds, and marine mammals of OCS oil and gas activities in the four-state region. A fiscal year 1989 309 project with Eugenia Laychak as Principal Investigator will focus on conflict resolution

between offshore activities (developing or disposing of nonrenewable resources--oil and gas, marine minerals, and ocean dumping) and commercial and recreational fisheries.

Of the four states, Alaska and California have had the most extensive experience with management of ocean resources in state and federal waters and beyond. In both states, a number of policy innovations vis-a-vis ocean management have been made. For example, in California, the California Coastal Commission has established and implemented an oil transportation policy with a preference for transportation by pipeline rather than by tankers. The Secretary of Environmental Affairs has initiated the practice of joint federal, state, and local agency environmental review of oil projects. California local governments also have been very involved in attempting to affect the conduct of ocean activities in the federal zone. Santa Barbara County, for example, recently initiated a far-reaching program of monitoring the socio-economic impacts of offshore oil development. Local governments' control of onshore support facilities gives them leverage in dealing with offshore issues.

Washington and Oregon have less actual experience with ocean resources management other than fisheries management, but Oregon has been engaged in a unique anticipatory ocean planning effort while Washington has emphasized research and data gathering.

On December 27, 1988, President Reagan issued Proclamation 5928 broadening the territorial sea of the United States from 3 to 12 nautical miles in breadth. Several efforts currently are underway to determine the interests of coastal states in the 3 to 12 mile zone. The Western Governors Association (WGA) and the Coastal States Organization (CSO) are undertaking a survey of the coastal states to determine the extent to which state officials wish to pursue a greater state role in the expanded zone. In a parallel effort funded by the Hawaii Office of State Planning, Robert Knecht recently organized the preparation of six legal and policy studies to explore the implications of the territorial sea extension authored by Marc Hershman of the University of Washington, Casey Jarman and Jon Van Dyke of the University of Hawaii, Tim Eichenberg of the University of Maine, Jeff Ballweber and Richard Hildreth of the University of Oregon, Bruce Harlow, Rear Admiral USN (Ret.), and Robert Knecht, University of Delaware. These studies identify problems which should be addressed by the west coast 309 program in coordination with other regions. The SeaNet group of Sea Grant funded legal programs is considering a coordinated set of follow up studies to the WGA, CSO, and Knecht efforts, to be followed by a national conference on the extended territorial sea.

State ocean roles more generally will be reviewed by a series of panels (including a panel devoted to the west coast) organized by Richard Hildreth and Michael Orbach of East Carolina University at the Coastal Society's October 1990 Conference in San Antonio, Texas.

A related 309 project "Improving State and Federal Ocean Governance Capabilities in the Northeast Pacific" has produced a detailed report by this project's investigators on enhancing state and federal ocean management capabilities on the west coast. Thus this project's plan focuses on specific priority ocean problems derived from this project's questionnaires, instate meetings, and regional workshop.

2. Regional Needs and Priorities

At the regional workshop several ocean issues were identified as priority problems. On some of the problems, immediate action seemed to be a possibility, while for others, the first step would be additional information exchange and workshops.

Oil transportation -- Given that all four states have enacted or introduced new oil transportation and spill prevention and cleanup bills, there is potential for immediate regional action here--including an interstate compact entered pursuant to section 309 as discussed under section 309's institutional role below. As a foundation for regional action, the four states should appraise the results of current MMS, Coast Guard, and industry studies of oil spill response contingency plans, technology, and training.

Uniform regional minimum standards for offshore oil and gas development -- This also seems to be a candidate for immediate regional action. For example, uniform treatment as "areas of critical environmental concern" or similar status in offshore oil decisionmaking would seem to be merited for offshore rocks, reefs, and islands in state waters which currently are included in the federal California Islands Wildlife Sanctuary, Oregon Islands National Wildlife Refuge, and similar management units in Washington and Alaska.

Offshore Mining -- At least three of the region's states have potential for offshore hard mineral mining. The economic and environmental issues likely to arise are similar and thus an appropriate subject for coordinated interstate management responses under the 309 program.

MARPOL -- As discussed under coastal water quality above, further information exchange as part of a regional coordination strategy is the next step. Consideration should be given to a regional approach to management of plastic and

other wastes from fishing vessels since the fleets cross state boundaries and enter many different ports in the region. There may be opportunities for standardized facilities, signs, etc. that improve efficiency and reduce costs.

State ocean management capacity -- Information exchange in the form of a workshop is a first step here.

In addition, in comments on the draft plan, the Pacific Fishery Management Council, which manages fisheries adjacent to three of the four west coast states, identified research on assemblage management for groundfish, several specific allocation issues, and better coordination of the region's salmon coded wire tagging programs as regional issues important to it.

Thus the next step for the region's 309 program could be a regional workshop to exchange collected information on these and other shared problems in contiguous ocean areas, and to discuss coordination mechanisms and institutional arrangements for dealing with them between the four states and relevant regional federal agencies. At this or succeeding workshops protocols for regional interstate and intergovernmental responses to shared regional problems in contiguous ocean areas could be developed.

On the state legislative side, the Ocean Resources Committee of the Western Legislative Conference (WLC) appears to be providing an effective forum for legislators from the four west coast states to interact on regional ocean policy matters together with legislators from U.S. Pacific island states and territories. At its November 1989 Annual Meeting in Monterey, California, the WLC adopted a resolution supporting a compact between Pacific coast states and British Columbia to provide better planning for ocean resources which are of regional concern and develop a coastwide oil spill response plan. The Alaska Oil Spill Commission has made a similar recommendation regarding regional spill response in its January 1990 report on the Exxon Valdez spill.

The Western Governors Association (WGA) periodically takes a strong interest in regional ocean issues relevant to the west coast 309 program as well. A specific recommendation of this plan is that the WGA form an Oceans Resources Committee to meet and coordinate with the WLC committee. Further support for this recommendation could be developed as part of the workshop recommended above and followed up by NCRI and the regional CZM board. Such coordination with the legislative branch is not unprecedented for the WGA, because they already meet once a year with U.S. Senators from the western states.

VI. REGIONAL PLAN IMPLEMENTATION

A. INFORMATION EXCHANGE

1. Introduction

The need for improvements in the interstate exchange of information was a theme that surfaced continually during the development of this regional coastal management plan. Access to adequate information is a common problem among the states and is crucial to developing a coordinated approach by the four west coast states to regional coastal management issues. One of the tasks of the plan is to identify what can be gained by improving the exchange of information, the appropriate role for the 309 program in facilitating this exchange, and approaches to be considered.

The goals of the 309 program are to provide support to coastal states for cooperative interstate and regional efforts in three areas: coordination of state coastal zone planning, policies, and programs; study, planning, and implementation of unified coastal zone policies; and establishment of a means to identify, examine and resolve mutual marine and coastal zone management problems. Improved information exchange could accomplish several objectives that would benefit the regional 309 program and develop a regional approach to coastal management: (1) increase coordination between west coast states for identifying regional issues and developing a more uniform approach to problem solving; (2) increase the utility of information produced by the four west coast states that is related to coastal management issues, and the likelihood of it being applied by state coastal management agencies; and (3) reduce duplication of studies and programs that have already been developed or funding of unnecessary studies.

Section 15 CFR 932.3(c)(5) of the 309 regulations specifically authorizes the use of 309 funds for the "holding of workshops and similar, necessary meetings or conferences." Nothing in OCRM's Spring 1989 309 Guidance document appears to discourage the use of 309 funds for such workshops either.

The four states need to assess NOAA's new COMPAS (Coastal Ocean Management, Planning & Assessment System) microcomputer based system for state CZM managers against their information needs. The system will run on Apple Macintosh computers using Apple's Hypercard software. It is intended to provide access to NOAA data on coastal water quality, fisheries, and habitats. A COMPAS prototype has been developed for Texas estuaries. NOAA will select a second coastal state to participate in COMPAS's development during fiscal year 1990.

Also worthy of investigation are the potential west coast roles of the Multi-State Fish and Wildlife Information Systems project funded by the U.S. Fish and Wildlife Service. The project provides technical assistance to states interested in implementing computerized fish and wildlife information systems. All four west coast states have designated state wildlife and marine agency contacts for the project. Oregon will be implementing the project's Marine and Coastal Information System during 1990.

The region's past experience under the terminated National Coastal Information Center (NCIC) concept also must be kept in mind. Portions of the CZM library holdings established under NCIC remain intact at the Columbia River Estuary Study Taskforce (CREST) offices in Astoria, Oregon and at other locations in the region.

Questionnaire respondents, instate meeting participants, and regional workshop participants indicated the types of information that coastal states are interested in exchanging. They covered a variety of topics that can be grouped into four categories: (1) agency responsibilities regarding specific coastal management issues and staff contacts; (2) management process, regulations, and legislation; (3) research and technical information; and (4) public information and education. Project participants indicated that improved information exchange includes increased public education on coastal management issues.

Various mechanisms or formats that could be used for improving information exchange were identified during the course of the project: (1) data clearinghouses and repositories; (2) public listings and exchange; (3) west coast newsletters; (4) meeting, workshop, and conference formats; (5) computer and electronic information system access; and (6) directories of agency responsibilities and staff contacts. The need for better exchange of information has several ramifications for the role of 309 program and development of an interstate 309 coastal management plan: (1) the role played by NCRI and the 309 program regarding information exchange; (2) the type of priorities set for funding 309 projects; (3) the effect of information exchange on updating regional 309 plan issues; and (4) information exchange and coordination as a required component of 309 projects.

2. Feasibility of Linking Geographic Information Systems

There are two major types of computer systems that have a potential to improve data exchange and coordination management on interstate coastal management issues between states. The first are Geographic Information Systems (GIS's), which are

used in a wide variety of ways to map and manipulate data using a computer. The second are Electronic Mail Systems (E-mail), which connect users through computers and allow them to distribute messages to other users. E-mail systems appear to be limited to communications between agencies within states, and are not examined further as part of this plan.

Geographic Information Systems are in varying degrees of use in all four states, at federal, state, and local government and private industry levels. Geographic/mapped information is digitized or otherwise entered into a computer system, where it can be analyzed, manipulated (e.g., combining overlays of specific attributes), printed out and updated. In some cases GIS's are replacing standard cartographic or engineering drafting functions for industry and agencies. The uses to which GIS's are put also varies widely, and include:

-- land ownership, leases and uses

-- resource values such as fish and wildlife populations and habitat, oil and gas, timber, and minerals

-- physical environmental characteristics such as soils, water quality, and oceanography

-- transportation and utility systems

-- subdivisions, zoning, and tax information

-- special applications such as oil spill mapping and response.

GIS Use Characteristics. There are several characteristics of GIS computer systems and their use that affect the ability to access or exchange information. Each system uses a combination of hardware and software to run the GIS. Major hardware categories include those which utilize mainframe or mini-computers, and desktop systems, which may be either PC or Macintosh-based. The type of software used and compatibility with other software is more critical to information sharing than the type of hardware; major software types include ARC INFO, Intergraph, MOSS, and AutoCad. ARC INFO appears to be the most commonly used system on the west coast. It is easier to access or extract and reprocess information from a GIS that uses compatible software. Some translation systems are available but are cumbersome (G. Dickerson, personal communication). The form of or options for system output also affect the ability to transfer information (e.g., tapes, floppy disks, downloading from a modem).

The use characteristics of a GIS system include what purposes it is being used for, what type or form of data is being utilized (including scale and source), and how the GIS is set up to enter, store, analyze, and output the data. This information must be known in order to understand the utility and feasibility of using GIS information from another system. The nature, source, scale, and format of data entered into a GIS system has been a critical factor in determining its usefulness to multiple users. Historically, most GIS's have been set up for specific data management or analysis tasks, and do not necessarily make information dissemination or coordination with other systems a major operating objective. This is changing as systems aimed at multiple users are set up and increased data sharing occurs among systems. Procedures for use of a system must also be understood--fees and processing arrangements, whether a remote query and data transfer is possible, and how access is authorized, whether or not the system operator must do a special run of the system to produce the data required.

GIS Systems within States. Federal, state, local government and private GIS systems are in use in all four states. This discussion focuses on systems or development efforts that are applicable to coastal and ocean management efforts.

Alaska. GIS systems are common in Alaska at local (Anchorage, North Slope Borough, Kenai Peninsula Borough), state (Natural Resources, Fish and Game Environmental Conservation), and federal government (U.S. Geological Survey, U.S. Fish and Wildlife Service, U.S. Forest Service, MMS) levels and with private industry. ARC INFO is the most common software used, and Alaskan systems are generally compatible with each other (G. Dickerson, personal communication). Data sharing is increasing between systems. Unlike in Oregon and California, there has been little effort to develop a system that is oriented towards ocean or coastal management, and that is open to anyone who wishes to use it. However, recently introduced legislation would allow public access to state systems for a fee for the service provided.

California. State agencies in California rely on the Teale Data Center, which is a computer lab that provides GIS and other computer services. The Teale Lab uses ARC INFO, and translates data from other systems, provides data runs, and support for other state GIS systems. The State Coastal Commission has a demonstration project with the lab that involves developing resources layers and constraint maps related to offshore oil and gas projects in the Santa Barbara Channel and nearby areas. The main objective of the demonstration is to use the query process function for project review. In the early 1980's, the state was mandated to

develop a coastal resource information center. A library and computerized inventory has been finished, along with a limited CAD function. However, funding limitations have delayed its conversion to a GIS system. California has a state computer mapping coordinating committee, and several regional groups such as the Bay Area Automated Mapping Association. The size of the state is a problem, with diverse user groups who have different GIS and data needs that complicate coordination between systems.

Oregon. GIS systems are also used at local, state (Fish and Wildlife, Environmental Quality, and Parks), and federal government levels for tasks such as monitoring fish catch, classifying marine habitat, oil spill response applications, and managing parklands. The GIS State Service Center has been established funded by the Department of Energy. In addition, the state Department of Land Conservation and Development is in the process of developing an ambitious offshore GIS system based on ARC INFO software. The intent is to serve the needs of state and federal agencies, and eventually be able to link with systems in Washington or other ARC INFO based systems. After this system is more fully developed, the GIS system could be expanded for onshore coverage. Oregon has a formal GIS Development Plan which outlines who is responsible for covering specific issues and providing specific data.

Washington. Several state agencies in Washington use GIS systems, including the Departments of Natural Resources, Wildife, Fisheries, Ecology, Energy and Social Demographics. Most systems use ARC INFO on a variety of prime, pc, and work station computers. Washington has a Geographic Information Council that is trying to integrate GIS development across the primary state agencies. There are several GIS joint projects between state and federal agencies on resource specific projects, such as hydrology and transportation facilities on forested lands and federal-state hydropower planning. These are still in the data development stage. Access between systems in different state agencies is considered to be good, although there is little public access. With regard to communication with other states, there are state representatives on the Northwest Lands Information System Group, which includes state and federal agencies, and a Northwest Computer Aided Mapping Group. The Department of Natural Resources also has used the Oregon GIS Service Center for plotting results. The state Department of Ecology, the coastal management agency in Washington, is in the pre-conceptual states of developing an offshore GIS system, primarily talking with other agencies.

Other Relevant Systems. Within NOAA, the National Ocean Service Office of Strategic Assessment is developing a Macintosh-based desktop GIS system that could be used by a

multitude of state and federal agencies for ocean management programs. The compatibility of the system with ARC INFO and other common software and determining an appropriate scale and format of data are still issues to be resolved.

Opportunities for Coordination and Information Sharing. There is increasing sharing of information between systems within states. California is attempting to develop computer data bases that can be accessed by a wide variety of user groups, Oregon has a formal program, and legislation has been introduced in Alaska to allow more public access to computerized information. However, discussions with GIS program managers indicate that communication between program managers in different states does not occur on a regular basis. Again, the lack of need for coordination results from the perception that most GIS programs are oriented towards specific end uses and specific geographic areas. What does take place occurs either at annual conferences and trade shows, or through regional user groups organizations for specific software such as ARC INFO. Major conferences are the GIS/LIS fall conference (trade show and papers) and the Urban and Regional Information Systems (URIS) conference. There appear to be no formal directories of GIS systems within the four states. It may be possible to obtain information on existing GIS systems from major vendors of GIS software such as ARC INFO (ESRI). Regional user group meetings and bulletin boards exist for certain software users: ARC INFO has Alaskan, Pacific Northwest, and California/Nevada/Hawaii regional user groups.

Potential Interstate Coastal Management Users of GIS. Because most GIS programs are oriented towards specific end uses and specific geographic areas, some of the program representatives contacted have questioned the need for interstate coordination among GIS programs. The potential for such coordination depends on the extent of shared and common coastal management issues to which GIS could be applied. The following topics represent potential interstate uses of GIS that should be explored:

-- mapping and analyzing data for a specific resource, characteristic or management unit that crosses state borders. Applications could include river basins, estuaries, wetlands, and fisheries resources.

-- mapping and analyzing data to obtain a big regional picture on specific resources, issues or characteristics. Applications could include wetlands (extent of and proposals for development within), oceanography, and tracking oil spill events.

-- increasing the role of state agencies in ocean resource management.

-- standardizing data bases for management and enforcement actions by regulatory agencies.

-- learning what other states are doing with GIS systems (techniques, applications) that could be applied elsewhere.

-- improving information exchanges between agencies within states.

3. Other Regional Needs and Priorities

A major change required in the exchange of information is to orient information exchange more towards management and decisionmakers. Solving management problems is a real need. Making information and technical data more management-oriented would help alleviate one of the major problems with the 309 program as it currently exists; the failure to integrate 309 projects into agency operations. Regional workshop participants felt that while useful information is out there, easily obtainable data bases on technical information, management approaches, and regulations are limited. Identification of key contacts within state agencies for specific programs would be useful in finding out what information exists and increasing coordination with counterparts in other state agencies.

Conferences/workshops -- The formats of most coastal management conferences emphasize sharing research, and are not aimed at reaching solutions to management problems. Conferences such as Coastal Zone '89 do not meet this need, and in addition, do not provide enough of a focus on regional problems. Funding for sending staff to conferences is also a problem, particularly when there is no specific objective to the conference. Recommendations for making this mechanism more useful for information exchange included (1) setting specific agendas for problem solving; (2) tying workshops to other regional meetings; (3) making regional workshops a component of 309 funded projects; and (4) letting state agency representatives fashion agendas in advance on rotating topics.

Newsletters -- Newsletters are a potential means of updating agency staff on developments in research, regulations, and management approaches. Problems include who would prepare them and whether 309 funding is an appropriate source. There are existing newsletters from state agencies that could be distributed to other states such as Washington Department of Ecology's Coastal Currents.

306/309 Program Reports -- Another need is increasing the utility of the reporting requirements of the 309 and 306 programs by increasing information sharing. Quarterly reports by 309 project investigators could include findings as they are being developed, rather than waiting until the final report. Annual 306 programs from each state could be expanded to include information on major research, regulatory, and management accomplishments for the year and how 309 projects were utilized if at all. This could include brief bibliographies.

Directories -- A basic problem faced by agencies in sharing information is finding out who are the appropriate agencies and staff to contact in other states. There was significant interest in preparing a directory of state and federal agencies in the four states that would list program responsibilities by issue and key agency contacts for each of the programs. Agency staff want to be able to directly contact the right person in another state and find out what approaches to problems have been used. Our recommendations below for an enhanced role for NCRI include treating this directory need as a top priority.

Based on the foregoing, two regional information exchange needs are judged to be of high priority: (1) increasing capacity for interstate coastal management coordination by developing a directory of federal and state agencies in the Pacific coast states, including program responsibilities by coastal management issue, key contacts, attorney general staff, and relevant academics; and (2) facilitating information collection and sharing on research, regulations, legislation, and management approaches for the following topics: oil spill prevention and response; meeting the requirements of MARPOL V; and minimum standards for development of petroleum and mineral resources in coastal ocean waters. Of medium regional priority are: (1) evaluating modifications to the 309 investigator and 309 and 306 program annual reporting requirements to increase information sharing on pertinent research, regulations, legislation, and management approaches; (2) evaluating the feasibility of establishing a regional CZM information clearinghouse in light of past attempts to do this; and (3) utilizing regional workshops or conferences to address problems related to specific regional coastal management issues, either separately or as a component of appropriate projects.

B. SECTION 309'S INSTITUTIONAL ROLE

Section 309 can play an important role with respect to regional institutional arrangements. In addition to modest potential funding support, section 309 provides explicit legal

support and specific legal incentives for regional coordination through interstate and intergovernmental agreements and compacts. Section 309 provides advance Congressional consent for two or more coastal states to enter agreements or compacts for (1) developing and administering coordinated coastal plans, policies, and programs, and (2) establishing institutions or agencies for implementation of such agreements or compacts.

Section 309 also requires representatives of the Secretaries of Commerce, Interior, Transportation, and Energy, the Environmental Protection Agency's Administrator, and the Chair of the Council on Environmental Quality to participate whenever federal-state consultation is requested by such an institution or agency, whether it is a temporary or permanent one. Furthermore, for interstate compacts created pursuant to section 309, recent federal appellate court decisions in the Pacific Northwest (which the U.S. Supreme Court declined to review) provide significant judicial support for interstate compacts used in regional natural resources management such as that which could occur under a 309 compact. In addition, section 309's provision for advance Congressional consent to interstate agreements and compacts can remove constitutional doubts sometimes raised by the federal courts about interstate arrangements which proceed without Congressional consent.

At its November 1989 Annual Meeting in Monterey, California the Western Legislative Conference (WLC) (which includes Alaska, California, Oregon, and Washington) adopted a resolution supporting a compact concerning Pacific ocean resources management including a regional oil spill response plan between Alaska, California, Oregon, Washington, Hawaii, Idaho, and the Province of British Columbia. The WLC's Ocean Resources Committee will be meeting during the Spring of 1990 to follow up on the resolution. Dick Hildreth's 1989-91 Oregon Sea Grant project is exploring the legal aspects of such regional approaches to ocean and coastal resource management including the use of section 309 interstate agreements and compacts.

C. ENHANCED ROLE FOR NCRI AND THE REGIONAL CZM BOARD

The four-state west coast region has special qualities (physical, socio-economic, legal, and institutional) that make it different from other coastal regions in the country. NCRI is centrally located in the region and through its role administering 309 grants and coastal economic development grants is developing a vast reservoir of experience with CZM problems in the region. Aided by its regional CZM board, NCRI should begin viewing itself as a regional CZM information and coordination office. Three initial steps toward that role are suggested as part of this plan: (1) supervision of the

preparation of a regional CZM directory with 309 funding support as a four-state directory of CZM expertise modeled on the existing directory compiled by the Washington Department of Ecology; (2) continuation and expansion of the existing practice at the annual regional CZM board meetings of information collection and dissemination by the state 309 coordinators of developments and trends within the state's CZM program; and (3) keeping this plan alive and current by supervising the plan amendment process detailed below. This shift in modus operandi by NCRI and the regional CZM board would represent a cost-effective response to the consistent requests from the four states at the instate meetings and regional workshop for effective coordination and information exchange on shared regional issues and common problems.

The regional personnel directory recommended above would be organized by problem area and be broad in scope, e.g., attorney general staff and academics with experience in the problem area would be included. The cost of compiling such a directory is estimated to be between $5,000 and $10,000. The directory would be updated annually through a process similar to the plan amendment process described below. The directory also would assist coordination and communication between CZM agencies and relevant non-CZM agencies in each state. Several commenters on the draft plan strongly supported such a directory.

Marine academics, who have been involved in past west coast 309 projects, agree that there should be better coordination between state and federal agencies and academic researchers with respect to applied coastal research so that agency needs can be matched with the quite strong academic research capabilities in the region. In each of the four states there are academic researchers interested in contributing to better coastal resource management in the region while bettering the education and research products of their institutions. Thus the regional personnel directory, if compiled as recommended, would include relevant academics and their areas of experience and expertise.

As indicated above, a major problem has been integrating the results of 309-funded projects into the operations of state CZM agencies and other relevant state and federal agencies in the region. Typically, state 306 program staff review proposed 309 projects about two years ahead of the time when the project's results will be available. Getting 309 project results back to relevant state agency staff has been a continuing problem. Therefore, NCRI and the regional CZM board should encourage 309 project proposers to build as much continuing information transfer into the proposed projects as feasible, including, where necessary, regional meetings at the project's front end to coordinate and guide the project by

identifying a critical path through the project that will deliver useful results in a timely fashion. The state 309 coordinators should be involved in these processes throughout the project's life, but they bear special responsibility at the project conclusion stage for follow-up within their state's CZM agency and other relevant state and federal agencies in the region.

The foregoing steps will be useful responses by the region's 309 program to the regional need for CZM policy coordination that was clearly identified at the instate meetings and regional workshop. This need for regional policy coordination arises in part from the fact that existing national forums like the Coastal States Organization tend to diffuse regional concerns in situations where distinct regional features merit special consideration.

D. PLAN AMENDMENT PROCESS

Once a year each state's 309 coordinator should convene a workshop co-sponsored by the state's 306 program involving state and regional federal agencies, relevant academic institutions, and user and public interest groups analogous to the "instate meetings" that were held to produce this plan. Participants in this workshop would review current issues relevant to both the state's 306 program and the region's 309 program and prepare a state assessment of the region's 309 program for the past year. Regarding the 309 program, workshop participants would develop proposed amendments to this plan for consideration by the regional CZM board at its next annual meeting. At the annual regional CZM board meeting, plan amendments developed at the individual state workshops and other proposed amendments would be reviewed for final adoption by the board. Adopted amendments would be implemented in the next funding cycle of the 309 program.

VII. BACKGROUND INFORMATION FOR REGIONAL PLANNING

A. STATE OF THE REGION'S COASTAL ZONE: NATURAL RESOURCES, ENVIRONMENTAL QUALITY, AND DEVELOPMENT ACTIVITIES

1. Introduction

This section of the plan briefly inventories the natural resources contained in the onshore portions of the Northeast Pacific coastal zones, highlighting wherever possible the current development activities associated with those resources. A similar overview for offshore resources and activities in state and federal waters is contained in the related 309 project report "Improving State and Federal Ocean

Governance Capabilities in the Northeast Pacific." Additionally, the section discusses several other significant activities and uses occurring along each state's coastline. Finally, it presents a general overview of each state's coastal zone environmental quality.

With Alaska excluded, the West Coast is second only to the Northeast in amounts of urban land, people, and population density (Ringold & Clark 1981). Despite that statistic, over 68 percent of its coastal lands remain significantly undeveloped[1] (Id.). Broken down between ocean coastline and tidal shoreline, the four states compare as follows:

Alaska	coastline	6,640	tidal	33,904
California	coastline	1,100	tidal	3,427
Oregon	coastline	296	tidal	1,410
Washington	coastline	157	tidal	3,026

California's coastal zone extends 1,100 miles from the Oregon border to the Mexican border. The state's 2,400 miles of marine shorelines range from the steep, rocky headlands of the north coast to the semi-arid coastal plains and terraces in the south. More than 1,000 miles is ocean coastline backed by cliffs and bluffs, cut across by narrow river valleys and occasional expanses of sandy dunes and beaches. An additional 1,400 miles of shoreline border inland bays, estuaries, lagoons, sloughs, and tidal creeks.

Oregon's coastal zone extends from the Washington border in the north to California in the south, encompassing nearly 300 miles of coastline. For CZMA purposes, the state has demarcated a coastal zone that reaches inland to the crest of the Coast Range Mountains[2]. The zone varies from 8 to 45 miles in width and includes about five million acres or 7,800 square miles of land area (12.4 percent of Oregon's 96,981 square miles) (Pac. Basins 1978).

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[1] Given the massive area of its coastline, and the state's sparse population, including Alaska would skew the statistic even more. The West Coast's major urban areas center around natural ports of the region. The vast urban areas surrounding San Diego, Los Angeles, San Francisco, and Seattle account for nearly 90 percent of the region's population (DOC 1987).

[2] The Umpqua and Rogue River Basins and the Columbia River all pierce the Coast Range, thus interrupting Oregon's natural, geologic coastal zone border.

Washington designates its coastal zone by county (those whose borders touch marine waters) rather than by drawing an inland band. The state's coastal zone may be differentiated by coastal terrain. Three of Washington's fifteen coastal counties border along the Pacific Coast. The remaining twelve coastal counties fall within the coastal zone because they border Puget Sound.

Instead of by county, Alaska governs its immense coastal zone through thirty-five coastal districts or burroughs. The actual boundaries of its coastal zone were determined according to biological and physical characteristics of the state's coastal areas (DGC 1989). The coastal zone includes all areas where uses and development activities may impact Alaska's coastal waters and resources (Id.). As the state considers anadromous fish a coastal resource, several districts claim coastal zone boundaries that extend inland as far as the anadromous fish run, in some cases, close to two hundred miles.

The Pacific Coast's total coastline of 7,623 miles and tidal shoreline of 40,298 miles represent about half of the U.S. coastline of 13,334 miles and tidal shoreline of 91,154 miles (DOC 1975).

2. Natural Resources Development

a. Oil and Gas

(1) California

California's coastal zone, both onshore and offshore, has yielded commercial quantities of oil and gas since the late 1800's. In 1987, onshore sources accounted for more than eighty-five percent of the state's total production (Cal. Coastal Comm. 1988).

By far, most oil and gas extraction in California's coastal zone occurs through offshore and onshore drilling operations in the Los Angeles/Ventura areas of southern California. Shore-based tanker facilities, pipeline linkups, processing facilities, and storage areas are additional upland oil and gas activities. As of 1987, forty-eight such onshore marine terminals were operating in southern California while twenty-two facilities were producing in northern California (Cal. Coastal Comm. 1988). Additionally, there are thirty-six operable refineries in California.[3]

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[3] California ranks second in the U.S. in number of refineries and also second in refining capability with 16 percent of the national refining capacity (Cal. Coastal Comm. 1988).

Principal onshore locations where oil and gas extraction occurs include the foot of Rincon Mountain and areas near Ventura and Port Hueme in Ventura County; El Segundo and the San Pedro area in Los Angeles County; and in northern Orange County at Huntington Beach.

(2) Oregon/Washington

Past exploratory drillings have located small commercial quantities of oil and gas offshore Oregon and Washington. However, other than the Mist natural gas field in coastal Clatsop County, Oregon, no significant discoveries of oil or gas have occurred in either state's onshore coastal zone. In Washington, petroleum refining is an important industry. In the state's northern region, major facilities operate both in Anacortes and Ferndale, processing tanker-delivered Alaskan oil.

(3) Alaska

Virtually all of Alaska's current on-shore oil and gas production takes place in two areas, Cook Inlet and the North Slope. Both are within the state's coastal zone.

Located in south central Alaska, near Anchorage, the Cook Inlet fields have been producing large quantities of oil and gas since the 1950's. Production facilities operate primarily on state and native corporation lands, although there are also some producing federal fields. Although the fields should continue producing commercial quantities through the 1990's, the Cook Inlet production is currently decreasing relative to previous totals. That decrease is projected to accelerate significantly during the 1990's.[4]

In contrast to the substantial depletion of the Cook Inlet fields, the huge oil deposits located on the North Slope, fields which supply the bulk of onshore oil to the Alaskan pipeline, could support large-scale commercial production well into the twenty-first century. Currently, all North Slope production onshore takes place on state or native corporation lands, with major fields located near the Prudhoe Bay area.

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[4] For further discussion concerning the projected decreases in oil production from Cook Inlet, see the related 309 project report "Improving State and federal Ocean Governance Capabilities in the Northeast Pacific."

Alaska's state five-year oil and gas lease sale plan, which has been suspended for fiscal year 1990, includes the following proposed upland lease sales:

1. Lease sale #75, Kuparuk Uplands, is scheduled for September 1992. The sale contains 421,000 onshore acres along the North Slope.

2. Lease sale #70A, Kuparuk Uplands Exempt, is scheduled for September 1990.

3. Lease sale #57, North Slope Foothills, is scheduled for September 1993. The five-year plan calls for the lease of 1.5 million acres of uplands in the foothills of the Brooks Range.

4. Lease sale #64, Kavik, is scheduled for May 1991. The state is planning to lease 771,800 acres on the North Slope's coastal plain.

5. Lease sale #61, White Hills, is scheduled for January 1992. The plan lease area contains 875,000 acres of uplands adjacent to the Kuparuk oil field in the North Slope.

b. Coastal Mineral Development

(1) California

Although insignificant compared to the level of petroleum development, some commercial mineral extraction occurs in California's coastal zone. In the northern counties, mining operations extract small quantities of metals, salt, feldspar, and dolomite. Sand and gravel is the only non-petroleum mineral produced in commercially significant quantities (DOI 1981). Mining companies work large gravel deposits along the Eel River and the Russian River. Additionally, a large quarry operation is located at Rockaway Beach. Near Monterey, sand is quarried in the dunes, and there is also a quarry at Majors.

Little mineral extraction other than oil and gas occurs in the southern coastal counties.

(2) Oregon/Washington

As in California, sand and gravel extraction is the only major commercial mining that occurs in the coastal zone of either Oregon or Washington.

In Oregon, over 30 percent of the state's 1974 mineral production of $30 million came from the coastal area. Sand and gravel, stone, and nickel, however, comprise almost all of

that coastal mineral production. Known deposits of gold, silver, mercury, silica, platinum, chromite, copper, titanium, zirconium, and coal lie at various sites along the coast, but quantities are thought to be small and of relatively low grade (Pac. Basins 1978).

Historically, huge quantities of sand and gravel have been produced from areas near Seattle and Tacoma. That steady depletion and the increasing urban development in King and Pierce counties, however, has decreased sand and gravel resources to the point that companies and agencies now are looking seriously towards potential sources along Washington's coast, particularly offshore.

(3) Alaska

With the exception of petroleum, gold, and platinum, large-scale mineral exploitation in Alaska's coastal zone has not taken place.[5] Although there are several known deposits of minerals in many regions, high operating costs due to inadequate transportation infrastructures and extreme climates currently preclude their development.

By far, most current mining operations extract precious metals, primarily gold. Besides small-scale placer mining, which already takes place throughout the state, several major lode mine operations in southeast Alaska near Juneau might begin operation during the 1990's. Owners of the neighboring mine properties at Kensington and Jualin, north of Juneau, are awaiting completion of environmental impact statements (EIS) before exploration to determine the mines' potential gold reserves begins. Additionally, an EIS is being prepared concerning plans to reopen the Alaska-Juneau Mine (A-J mine), a facility in Juneau that prior to its closure during World War II, was one of the world's largest underground gold mines. Other potential sources of precious metals include operations near Greenscreek (lead, silver, zinc), and the Apollo mine (gold) on Unga Island in the Aleutian Island chain.

The mining industry also is interested in the diverse geology of the Bristol Bay region which contains two known areas of significant mineral deposits. The Alaska Range near Lake Clark, and the Pacific side of the Alaska Peninsula from the Kupreanof Peninsula to Wide Bay, contain substantial deposits of copper, lead, zinc, silver, gold, and molybdenum (Bristol Bay 1986). However, unless large concentrated deposits are discovered, or the value of the minerals changes

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[5] The major gold mining takes place near Nome. Miners recently reactivated a platinum mine near Good News Bay.

drastically, the high cost of operation in this isolated region will prevent large-scale mineral development (Id.). Currently, placer mining is the only mineral extraction practiced in the region. Miners own between 300 to 400 federal placer mining claims within the region (Id.). No operation produces commercially significant amounts, however.

The region's only known major coal deposit occurs along Chignik Bay and contains an estimated 300 million tons (Id.). Although these beds have been worked in the past, current prices and transportation costs prevent commercial extraction (Id.).

Further inland at the Red Dog Mine, production of lead, zinc, and other minerals is scheduled to begin in 1990 at over 1 million metric tons of ore. The mine is located 87 kilometers from the Chukchi Sea coast 145 kilometers north of Kotzebue. The seaport for the mine is located 17 kilometers southeast of Kivalina. The port facility consists of a dock and causeway 40 meters wide and 60 meters long that extends into a water depth of 4 meters (DOI 1989).

Although several areas along the North Slope likely contain vast coal deposits, they currently are inaccessible either due to no transportation routes or because of opposition to development from various political associations or environmentalists.

c. Coastal Timber

(1) California

Logging is the dominant industry in the northern California coastal region. Most of the commercial logging occurs in Del Norte, Humboldt, Mendocino, and Sonoma counties, with Redwood and other conifers being the principal tree species harvested.

No major forestry occurs in California's southern coastal zone. Most of the harvestable trees in the state's southern region grow in or near Los Padres National Forest, an area inland of the coastal boundaries.

(2) Oregon/Washington

Commercial forest comprises at least 70 percent of every coastal county in Oregon (Pac. Basins at 14). The majority of timberland has been logged or burned during the last 150 years, so few areas of old growth remain. The federal government, through either the Forest Service or the Bureau of Land Management, administers large portions of the upland area, except in Tillamook and Clatsop Counties. The most

important forest type along the coast is Douglas fir, which occupies about one-half the commercial forest area and is prevalent in all but Clatsop and Tillamook counties, where hemlock-spruce dominates (Id.). Sitka spruce runs the entire length of the immediate coast, and up into the river valleys, where Western red cedar, and Orford cedar become apparent (DOC 1977). On dune ridges and similar lands, Western hemlock, Douglas fir, and red alder prevail.

The heavily forested areas of the north and central coast give way in the extreme south to herb and shrub vegetation along the immediate coast (Id.). In the mountains, Douglas fir and tan oak dominate. Other conifers such as sugar pine, ponderosa pine, incense cedar, white pine, and evergreen hardwoods are also found in quantity (Id.). Data from 1973 indicate that the coastal counties contain approximately 164 billion board feet of saw timber, mostly Douglas fir (Oregon Coast 1985). National forests and other public lands account for about two-thirds of that amount.

Of the more than 1.1 million acres of uplands within the coastal zone managed by Washington's Department of Natural Resources, nearly 80 percent is classified as productive timber land. As in Oregon, the timber industry for most of this century has provided the economic foundation for several of Washington's coastal counties, including Grays Harbor, Pacific, Clallam, and Jefferson. In recent years, a steady attrition of small mills has occurred all over the Northwest, and the Washington coastal region has been no exception. As a center for cedar shake and shingle making, which tends to be done in extremely small operations, it probably has suffered more than other places.

(3) Alaska

The southeastern and southcentral portions of Alaska's coastal zone currently support a large-scale and burgeoning commercial logging industry. Until the last decade, southeastern Alaska (for this study, the area south of Cordova) supplied the forestland for most of the commercial logging in the state. The majority of the southeast's logging and mill activity takes place in or near the huge forests of the Tsongas National Forest. Two species, Sitka spruce and Western hemlock, comprise the bulk of the coastal timber harvest. Commercial quantities of both yellow and red cedar also are harvested.

In recent years, logging activity in Alaska's southcentral coastal zone has increased substantially, especially in the area near Cook Inlet. A large portion of that increase, and this also holds true for logging in southeastern Alaska, is due to increased activity on private

lands, primarily the holdings of native corporations.[6] The logging industry in southcentral Alaska, especially inland of the immediate coastal area, relies more heavily on hardwood species, including Cottonwood and Birch.

Logging in Alaska's coastal zone will undoubtedly continue through the 1990's, although frequent controversy over access routes, often in the form of litigation between environmentalists, industry, and government, may slow the rapid pace of recent increases.

d. Estuaries and Wetlands

One of the most significant aspects of Pacific Coast estuaries is their function as buffering and acclimation zones for anadromous fish, notably salmon. For juvenile salmon migrating to the oceans, estuaries provide food and a critical acclimation zone where they become adjusted to oceanic salinities. For adult salmon, estuaries are important staging areas where fish migrating from the sea to spawn become adjusted for the strenuous journey to their spawning grounds far upstream. Excluding Alaska, the West Coast contains only 7.1 percent of the nation's coastal wetlands (Gosselin and Baumann 1988).

(1) California

Prior to 1900, coastal wetlands in California (including San Francisco Bay) covered about 381,000 acres (FWS 1979). Only 105,000 acres remain today, that acreage allocated among approximately 150 coastal wetlands. (Gates 1982).

The greatest reduction has taken place in Southern California. There, over 75% of the coastal estuaries and wetlands have been destroyed or severely altered by man since 1900 (Cal. Coastal Comm. 1975). Additionally, of the remaining state coastal wetlands acreage, 62 percent has been subjected to "severe damage," and 19 percent has received moderate damage (Id.).[7]

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[6] The beginning of Alaska's modern history of natural resource development may be pegged to passage by Congress of the Alaska Native Claims Settlement Act of 1971 (ANCSA). Among other things, ANCSA paved the way for the Alaskan Pipeline, extinguished all Indian title, and granted Alaskan Natives the right to select 44 million acres, which included the large tracts of densely-forested land that is supplying a major portion of the increases in logging on Alaska's private lands.

[7] Only 95,000 acres of California's coastal marshes remain, of which, only 19 percent are relatively undisturbed.

Dredging and filling, primarily for agriculture and urban development, has been a major cause of the destruction of much of the wetlands and related areas in California. Of the original 197,000 acres of marshes, mudflats, bays, lagoons, sloughs and estuaries (excluding San Francisco Bay) over 52% have been destroyed by dredging and filling.

A 1980 survey undertaken by the Coastal conservancy identified those wetland systems that had been artificially impaired and required enhancement. About 44 percent of the remnant coastal wetlands had been so severely disturbed and impaired that they needed restoration. The criteria used to select wetland areas where restoration is both possible and desirable were based on the type and degree of artificial alteration that affected the habitat including: reshaping of coastal water basins by channelization and dredging for harbors, ports, and marinas; diking of wetlands; filling of wetlands; restriction of tidal flow by roads, railroad crossings, channels or other structures in the wetland; water pollution from point and non-point sources; accelerated sedimentation; excessive human use of the wetland; and degradation or loss of supporting upland vegetation (Gates 1982).

(2) Oregon/Washington

Compared to other coastal states, Oregon has very little estuarine area. Its twenty-one major estuaries and fifteen minor estuaries total approximately 133,000 acres, or roughly 12 percent of the state's coastal zone[8] (DOC 1977). Recent analysis of estuarine wetland losses found decreases of 50 to 80 percent or greater of intertidal marsh has occurred within several Oregon estuaries (DEQ 1988). Diking for agricultural purposes is the primary cause of estuarine wetland loss (Id.). Most of the larger estuaries have been altered through dredging, filling, or diking (DLCD 1987). Civilization has yet to impact many of the smaller ones; they remain in a natural state (Id.).

Development activity in Oregon estuaries has slowed markedly since the passage of strict environmental protection laws in the early 1970s (Good 1981). Estuary management plans in the Pacific Northwest are largely preservation-oriented, particularly with regard to remaining wetlands. In the Columbia estuary, for example, only 110 of more than 42,000 wetland acres (0.3 percent) are designated for major development projects (CREST 1979). Even in Coos Bay, the most

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[8] Except for the Columbia River estuary, all of Oregon's estuaries (approximately 53,000 acres) could fit inside of Grays Harbor estuary in Washington (approximately 58,000).

extensively developed estuary in Oregon, only 208 of approximately 6200 remaining intertidal wetland acres (3.4 percent) are designated for development (Coos County 1982). Oregon has specific mitigation requirements for developments that impact intertidal flats or tidal marsh areas of estuaries.

Development in and around each of Oregon's estuaries varies, and, in large part, occurs on the scale permitted by zoning law. Farm and forest lands, and state parks and other open space lands make up the bulk of land around estuaries. Such lands comprise about 39,000 acres, or 76 percent of estuarine shorelands (DLCD 1987). Lands zoned for more intense development, including commercial, industrial, urban, residential, and water-dependent uses, cover only about 12,2376 acres, or 24 percent (Id.).

Three estuaries have been significantly developed for commerce and navigation. The Columbia River, Coos Bay, and Yaquina Bay all support major port operations, facilities that serve as vital economic trade links for the state.

Eight other estuaries have been developed less intensively for commerce or navigation. These shallow-draft estuaries maintain jetties and channels to support commercial and recreational fishing, and boating, and some commerce and related activities like boat building or fish processing. Although less developed than the three deep-draft estuaries, these smaller estuaries are nonetheless important to the coastal economy.

Several other estuaries have towns along their shores, but only limited estuarine alterations have occurred. These estuaries support occasional recreational boating and fishing, but mostly remain undeveloped. Some remain virtually untouched by surrounding development.

Washington's Puget Sound has the largest estuarine drainage area, largest estuarine water volume, and largest estuarine water surface area in the country (DOC 1987). Ten major rivers, fourteen minor rivers, and a great many small streams flow into Puget Sound. Shoal areas are virtually nonexistent and large tideflats and marshland areas are restricted to mouths of the major rivers--the Skagit Bay, Padilla Bay, and Samish Bay flats on the north and the Nisqually River delta on the south are the most notable (DEP 1976). Small tideflats and marshes are found frequently in the numerous inlets in South Puget Sound and Hood Canal.

From the Quinalt River south to the Columbia River, the coastal lands are characterized by wide sandy beaches and extensive dunes backed by grasslands and forests. Two major

estuaries occur in this region: Grays Harbor at the mouth of the Chehalis River and Willapa Bay at the mouth of the Willapa River. These two resources have served as a focus for development and industry along the Pacific portion of Washington's coastline, while providing important fish and wildlife habitat also. The mudflats, marshes, eelgrass beds, and waterways play an essential role in maintaining fish and shellfish for both recreational and commercial value.

As with other coastal regions, large areas of Washington's wetlands have been lost to development and agriculture.[9] Although the state Shoreline Management Act of 1971 restricts most activities in certain wetlands, the act excludes normal farming and forestry practices, and does not cover seventy-five percent of Washington's wetlands (Id.). Activities exempt from the regulatory process are responsible for the major share of wetlands losses.[10] Additionally, and unlike Oregon, Washington has no mandatory mitigation scheme, although local planning policies often incorporate concern for wetland loss (Good 1986). For example, in Grays Harbor, only 600 of 33,600 intertidal acres (1.88 percent) are subject to new filling for development (Grays Harbor 1986).

(3) Alaska

As may be noted from the coastline statistics listed in the introduction to section VII-A, Alaska contains over one-third of the total tidal coastline of the United States. This area supports a vast network of wetland and estuarine environments. Because much of the coastline is still virtually free of significant development, Alaska's coastal wetlands are pristine relative to most in the lower three Northeast Pacific states. Such waters provide irreplaceable support for many of the state's marine and wildlife resources.

For example, the Bristol Bay region's extensive shoreline contains hundreds of various size estuaries. The larger

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[9] Nearly seventy percent of the tidally influenced emergent wetlands in Puget Sound have been lost to diking, dredging, and filling. Core urban areas have lost ninety to ninety-eight percent of their original wetlands (Environ. 2010).

[10] As a recent report by Washington's Department of Ecology notes:

> The draining of wetlands, for example, is not regulated, and consequently twice as much acreage is lost to draining as is lost to filling, an activity that is regulated. The filling regulations, however, permit the filling of wetlands of less than one acre, and the cumulative effect of this exemption is a substantial loss of wetlands. (Environ. 2010).

estuaries include the river mouths and associated bays of the Togiak, Nushagak, Knichak, Naknek, King, Salmon, Meshik, and Chugik rivers. These estuaries provide vital rearing and feeding ares for fish, waterfowl, seabirds, marine mammals, shellfish, and other marine life. They are especially crucial to the salmon and char populations.

3. Other Uses

a. Coastal Urban Growth

(1) California

Presently, over two-thirds of the state's 27 million residents live in two coastal urban centers--San Francisco and Los Angeles Basin. Due to tremendous urban sprawl, few undeveloped stretches of coast remain from Los Angeles southward to San Diego. Estimates project nearly a 30 percent increase in the state's population by the turn of the century. If California's newcomers follow national projections, a majority of those new residents will inhabit the coastal regions.

(2) Oregon/Washington

In contrast to southern California, most of the Oregon and Washington Pacific coastline is relatively undeveloped. In 1980, the estimated population of Oregon's coastal zone was 178,296 or 23 persons per square mile, roughly 12 percent of the state's total population (Oregon Coast 1985). Although coastal population has doubled since 1950, the absolute numbers are still small enough that no immediate threat of severe development pressure exists. The largest city is Coos Bay with a population of 13,829 (Id.). Forty percent of the people of the coast reside in cities larger than 2,500 (Id.).

As of 1974, about 2.2 million people lived in the Puget Sound area of Washington as compared with only 80,000 on the state's Pacific Coast. The majority of the state's population is concentrated in the central and southern region of Puget Sound. By the year 2010, the state's population is projected to grow from about 4.6 million to about 6 million, an increase of 30 percent. Most of that increase--close to 90 percent--is expected to take place in a dozen counties that border Puget Sound; roughly 80 percent will occur in just five counties: King, Pierce, Snohomish, Thurston, and Kitsap (Environ. 2010). The four coastal counties of King, Kitsap, Pierce, and Snohomish contain over 57 percent of the total state population as well as two of the states's larger metropolitan areas, Seattle and Tacoma. From 1960 to 1970, these counties experienced an overall increase of 28 percent with Snohomish county achieving the fastest rate of growth at 54 percent.

Large gains were realized by the smaller suburban communities surrounding the Seattle area, while metropolitan Seattle experienced a 4.7 percent decline.

With the exception of a few favorable port sites, the Olympic Peninsula and the Pacific Coast regions of Washington are sparsely populated. In addition, the population rates are far more stable.

(3) Alaska

Other than Juneau, Valdez, and Anchorage, the only developed areas throughout the Alaskan coastal zone are unconnected small communities and villages. Except for some commercial fishing, the dominant uses are subsistence-oriented.

b. Tourism and Recreation

(1) California

The California coast has long been associated with coastal recreation and tourism. The types of recreational activities vary largely with the terrain and weather patterns along the state's 1,100 mile coastline, with greater emphasis placed on actual water contact activities the further south one heads.

Highway 101 serves as the main arterial over which tourist and residents alike gain access to the coastal zone. Tourism-related industries thrive all along its route.

In 1987, Californians spent over 500 million "participation days" in coastal-related activities (U.S. Rec. and Tourism 1988). These activates include an array of ocean recreation uses; all generate significant revenue in addition to their recreation value. For example, in 1987, sources estimated that the economic value from such activities as follows: boating ($54 million), water-dependent activates ($96 million), and water-enhanced activities ($674 million) (Id.). Further, coastal counties received an estimated $27 billion in revenues from tourism (Id.). The majority of that figure was ocean and coastal related.

(2) Oregon/Washington

Recreation and tourism in Oregon continue to expand with a growing local and tourist population and increased leisure time. Back packers and hikers use even the more isolated areas along the coast. Ocean recreational and charter fishing, especially for bottom fish, has increased dramatically in the 1980s. In-water recreation, once limited

to a few, is growing as scuba diving, surfing, sail boarding, and ocean kayaking gain popularity. Whale watching, almost unknown ten years ago, fills many charter boats during the winter months.

Key visitor centers in the state include the Hatfield Marine Science Center, which draws over 300,000 people a year.

Over 2.25 million acres of land in the uplands is publicly owned and available for recreational use; 56 percent of this area is in the Siuslaw and Siskiyou National Forests (DOC 1977a). State forests comprise 26 percent and the BLM controls 20 percent of the total (Id.). These opportunities for public enjoyment of the uplands, coupled with the many miles of publicly accessible beaches--make recreation one of the key uses of the natural resources of Oregon's coastal zone.

The Washington coast also has spectacular natural resources which attract tourists, miles of beaches--25 miles on the Long Beach Peninsula alone--game fish, razor clams, and Olympic National Park, to name a few. The importance of outdoor recreation to the state is evidenced by Washington's rank among all other states in several visitation categories: third in per capita visits to state park and recreation areas; sixth in number of campers in national forests; and 14th in number of visits to national parks. In 1988, the Olympic National Park drew more visitors than any other national park in the state, 3.36 million. The state estimates that in 1986, travelers spent $108.8 million dollars in four coastal counties (Strickland and Chasan 1989).

(3) Alaska

The Bristol Bay region's extraordinary fish and wildlife resources attract increasing numbers of fishermen, hunters, boaters, and wildlife watchers form around the world. Sport fishermen comprise about 95 percent of the guests of the region's 50 or 60 lodges. Between 1977 and 1982, the number of angler days fished increased dramatically from 36,337 to 66,738 (Id.).

c. Coastal Aquaculture/Mariculture

(1) California

In California, aquaculture is one of the oldest uses of the coastal zone. Aquaculture began along the coast in the mid-1800's with oyster and trout cultivation. By 1978, the total sales volume reached about $17.5 million (AAC 1980).

Current aquaculture industry entails the production of trout, trout eggs, salmon, oysters, oyster seed, clams, mussels, abalone, and smaller items such as bait minnows, ornamental fish, tubifex worms, and abalone seed (Id.). As of June 1987, 28 commercial aquaculturists were registered with the state Department of Fish and Game (Id.).

(2) Oregon/Washington

At present, very little mariculture takes place along the Oregon coast. Thus far, Yaquina Bay oyster production is the most successful attempt at mariculture. Investors have expressed interest in the cultivation of abalone, sea cucumbers, and other species near Port Orford. Some commercial mussel growing occurs near the Umpqua River, but none is actually taking place within the open ocean. The dynamic ocean conditions of most of the coast, especially during winter storms, will make any mariculture difficult and highly specialized.

Unlike Oregon, Washington possesses a healthy and developing (albeit small) aquaculture industry. In 1985, the state's aquaculture production totaled 38.8 million pounds in unprocessed whole weight for an estimated wholesale value of $34.6 million (DTED 1987). Aquaculture represents one of the few proved opportunities for sustainable long-term economic growth in many of the state's distressed coastal communities (Id.).

In order of value, Washington's major aquaculture crops are oysters, salmon, clams, trout, and mussels. Nori (seaweed), sturgeon, and geoduck culture, while not commercially established in the state, demonstrate potential to also become economically viable (Id.).

Washington aquaculture products are grown on tidelands, by float-suspension in open water, or in ponds or land-based tanks. The current aquaculture industry encompasses three broad categories: shellfish, finfish, and eggs and juveniles.

For many years the only component of Washington aquaculture, shellfish (oysters, clams, mussels) remains the most important segment of the industry in terms of dollars and volume of production. In 1985, shellfish revenues represented 69 percent of the state's aquaculture production (Id.). Thirty-nine shellfish firms reported gross incomes in that year, with eight of those companies controlling 86 percent of total receipts (Wash. Rev. 1985).

Oysters are the state's biggest aquaculture crop. During 1985, the state harvest ranked second in the nation, trailing only Louisiana (Inveen). Willapa Bay in southwest Washington

contains the state's major oyster beds, accounting for about 50 percent of the statewide total. The remainder of the state's oyster crop comes from Puget Sound, primarily along the south Puget Sound shores of Thurston and Mason counties.

Clam production values about a quarter of that for oysters. Although production has increased throughout the 1980s, sustaining that increase in the future seems unlikely given a severe limits of suitable rearing grounds (Id.). Virtually all of Washington's commercial clam production occurs in Puget Sound. Like the oyster industry, most of the commercial clam activity in Puget Sound occurs along the southern shores. Small quantities of claims are harvested in Willapa Bay also.

Mussel farming is a small but growing segment of Washington aquaculture. Large-scale cultivation of mussels began in Penn Cove off Whidbey Island in 1977. Production has increased nearly 50 percent annually since that time.

Finfish farming, particularly salmon, promises to be the greatest immediate growth area for Washington aquaculture (Id.). Salmon are raised in net-pens on marine waters or in freshwater rearing ponds or tanks. Only eight firms reported income from finfish farming in 1985. A number of small or part-time operations, firms earning levels exempt from reporting, also exist. In 1985, Washington was the nation's largest producer of farmed salmon (Id.). One firm, which maintains the world's largest single salmon ranch, produced most of that total. Eleven smaller firms produced the remainder.

(3) Alaska

Although small finfish farming operations have operated in the past, oysters are the only mariculture product currently harvested in significant commercial quantities in Alaska. Despite its infant status as an industry in Alaska, mariculture has sparked considerable debate in the state. Concern by many over potential mariculture conflicts with other uses has influenced state agencies to take an extremely cautious approach to developing the new industry. In 1987, the state legislature placed a moratorium on pen-reared farming of finfish that is in effect until July 1, 1990 (DGC 1988). However, in contrast to finfish restrictions, other legislation authorized collection of wild shellfish spat, expanding mariculture opportunities to include Alaskan mussels and scallops. In 1988, the legislature further expanded mariculture opportunities by allowing development of sea vegetable farms and hatcheries for shellfish and sea vegetables.

d. Transportation/Navigation

On the Pacific Coast, total waterborne commerce has grown at a faster rate than the national average, but looking at the six largest Pacific seaports individually, the pattern of cargo growth over the 15-year period 1965-1979 varies considerably. In terms of total percentage change over this period, the most striking growth occurred at Long Beach (127 percent) and Tacoma (100 percent). Tacoma, however, is one of the smaller ports and specializes in low value-per-weight logs and auto imports. Those ports experiencing moderate growth were Los Angeles (65 percent), Oakland (40 percent), and Seattle (33 percent). San Francisco, the smallest of the six major West coast ports, declined by 60 percent. In 1979, the value of trade passing through California customs districts totaled an unprecedented $36.4 billion. Waterborne commerce accounted for over 80 percent of that total (Friedheim and Bowen 1980).

The area fringing the Gulf of Alaska contains the most highly developed water transportation system in Alaska. All major and larger secondary population centers are served by either deep water freight or barge carriers. Deep water ports and ports which show potential for development into deep water facilities are common except on the Bering Sea coast. The most sophisticated and intensely used of the deep water ports is Anchorage, which is the state's transport hub. Its port is ice free (except in unusually severe winters) and can accommodate large containerized cargo shipments.

Other notable deep water ports are Valdez, Seward, Kenai, Cordova, Haines, and Skagway. Additionally, Yakutat and Kodiak have the natural attributes for a deep water facility, but so far have not acquired the capital for development.

Deep water vessel traffic in the gulf has not reached sufficient density to warrant extensively regulated shipping lanes. Two areas of regulated water lanes, however, do exist. In the southeast portion of Cook Inlet, a voluntary traffic lane for commercial freighters has been established, a response to repeated incidents of damage by passing freighters of commercial fishing gear. The second controlled sea traffic area is a required oil tanker lane extending from Valdez to Cape Hichinbrook. Beyond the cape the tankers can proceed without any course restrictions.

The Bering Sea is an area of light water traffic. The adjacent coast is without a viable deep water facility. The only deep water port is on the southern side of the Aleutian Islands at Dutch Harbor. Nome, Dillingham, and Kotzebue are the largest towns located on the Bering Sea; they are served

by lighter and barge vessels. The Bering Sea is ice free and open to commercial water traffic for a period ranging from six months in the southern areas to less than 100 days in the far north. During winter, all traffic in this area moves by air. Land connections between the Bering Sea and other regions do not exist.

4. Coastal Environmental Quality

a. Coastal Erosion

(1) California

The California shoreline is diverse and varied, consisting of sand beaches, eroding sculptured cliffs, and stalwart outcroppings. The many geological faults result in striking changes within short distances, and no single formation extends for any great length of shoreline.

An estimated 86 percent of California's 1,100 mile coastline (950 miles) is undergoing erosion, 125 miles of which is critical and makes building unsafe (Neuwirth and Mikkelsen 1987). Sections of the coastline having a protective beach between the ocean and the uplands are less susceptible to shoreline retreat than those directly exposed to wave forces. This natural protection is also one of the State's most valuable recreational resources, particularly in the Southern California metropolitan areas.

Generally, shoreline erosion is only a problem when it conflicts with manmade developments or man's use of the shoreline. Not surprisingly, then, few erosion problems exist north of San Francisco Bay (DNOD 1977). South of Santa Barbara, however, the shoreline has been extensively developed and is heavily used for recreation on a year-round basis. There are only a few reaches of the shoreline that have not been developed for housing, industry, railroads, highways, harbors, military installations, or recreational facilities.

(2) Oregon/Washington

Although there have been many episodes of beach erosion on the Oregon coast, some with significant property losses, the problem in general in not as severe as in many coastal areas (Komar and McDougal 1988).

The most dramatic erosion on the Oregon coast has occurred on sand spits. Development of these spits has taken place principally since the 1960's, so the associated erosion problems have occurred in recent years. Major instances during the late 1970s and early 1980s of sand-spit erosion occurred at Siletz, Nestucca, and Alsea Spits (Id.).

Because of their glacial-till composition, the Puget Sound bluffs are susceptible to fluvial and marine erosion and can be serious slide hazards. Although the Sound is protected from the direct influence of Pacific Ocean weather, storm conditions can create very turbulent and occasionally destructive wave action. Without an awareness of the tremendous energy contained in storm waves, the development of shoreline resources can be hazardous and deleterious to the resource characteristics which make Puget Sound beaches attractive. Miles of physically unsuitable shorelines were committed to residential and recreational subdivisions before the recent upsurge of environmental analysis. Some areas have already experienced slide loss and others are now known to be hazardous to future development.

b. Coastal Water Quality

(1) California

Not surprisingly, California's coastal water quality varies depending on which coastal area one examines. More highly urbanized or industrialized sections have greater problems maintaining their water quality. The California coast receives several types of hazardous discharges, including oil, bacterial and viral, organic, radioactive, toxic and trace chemicals, excess nutrient, and thermal (Jones and Stokes 1980).

The California Coastal Plan noted that "at least 130 waste disposal outfalls annually discharge 444 billion gallons of domestic and industrial sewage that has received varying degrees of treatment into california's wetlands, estuaries, and coastal waters (Cal. Coastal Comm. 1975).

Inadvertent discharges of untreated or inadequately treated wastewater have occurred and have necessitated temporary closures of beaches and coastal recreation ares in California (DOI 1981). The causes of the discharges range from sewage treatment "upsets" and sewer line ruptures to strikes by treatment plant workers (Id.). Additionally, heavy rains and flooding have resulted in untreated water reaching beaches and coastal areas.

The effects of wastewater discharges on coastal recreation depends on the concentration, treatment, and flow of the discharges. Untreated toxic chemical discharges in sufficient quantity destroy fish and aquatic plant life and render water contact recreation on nearby beaches hazardous to humans. Commercial and sport fishing near beaches and piers can be diminished significantly. However, barring bioaccumulative pollutants, these effects may be temporal if

ocean currents and wave action dilute the toxicity. More lasting damage occurs in estuaries where natural flushing is limited. Wastewater problems are most severe in the larger harbors: Humboldt, San Francisco, San Pedro, and San Diego Bays.

Fossil-fired electrical generation power plants are primary sources of thermal discharges along the California coastline. Power plants sited on the coast typically rely on seawater for once-through cooling, a process that results in water that has been heated above ambient ocean conditions being discharged into the ocean. Such thermal discharges alter ecological conditions. Sudden changes in water temperature, occurring when plower plants slow down or start up, can have lethal effects on biological resources or put certain organisms into shock.

As noted above, major sources of industrial wastewater discharges are concentrated in the large harbors. Chronic low-level pollution is emitted by pulp and paper products manufacturing, chemical plants, metals manufacturing, and food and kindred products processing. In Humboldt County, for example, two pulp mills achieved notoriety in June 1989 by earning nearby sections of the Pacific a spot on the federal Environmental Protection Agency's list of the state's most polluted waterways.[11]

Municipal sewage treatment plants are the largest point-source polluters in the San Francisco and Los Angeles areas. Municipal wastewater treatment plants also contribute significantly to the water pollution levels in the population centers of the north coast (Crescent City, Eureka/Arcata, and Fort Bragg), the central coast (Santa Cruz, Monterey/Carmel, and Santa Barbara), and the south coast (Ventura, Oxnard, and San Diego). Larger quantities of municipal wastewater discharges likely will occur with increases in population, housing construction, and household water use.

Along the central coast and increasingly along the north, significant wastewater pollution results from agricultural uses of pesticides and fertilizers. Water contamination from livestock solid wastes are also a problem, especially in the central coastal zone where agriculture is a major industry.

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[11] The mills, one owned by Simpson, Incorporated, the other, owned by Louisiana Pacific, discharge wastewater containing low levels of dioxin and higher levels of several other polychlorinated organics. Recreationists, especially surfers, for years have complained that pollution from the mills causes their skin and eyes to burn (Newsletter 1989).

(2) Oregon/Washington

Because the coastal regions of Oregon and Washington are not densely populated nor heavily industrialized, their estuaries are essentially unpolluted (DOI 1989). Exceptions occur in those estuaries near areas with larger populations and those associated with shipping activities (Columbia River, Grays Harbor, Yaquina Bay, Humboldt Bay, and Puget Sound). Man-made causes of localized water quality degradation include logging activities, pulp mill wastes, domestic and industrial discharges, dredging operations, and agricultural runoff.

Nonpoint sources, including animal waste and on-site sewage disposal, account for most of the fecal coliform bacteria in estuaries. Tidal flushing characteristics, estuarine circulation patterns, and ocean upwelling are factors that influence distribution of fecal coliform in a bay.

According to a report recently completed by Washington officials[12], all 163 Pacific coast shoreline miles in the state are fully supporting their beneficial uses.[13] The study assessed three-quarters of the state's estuaries, finding 78 percent of the assessed waters fully support their beneficial uses, 14 percent of the estuary waters are threatened, and 8 percent are impaired (Environ. 2010).

Major water pollution problems exist in the heavily industrialized areas and large population centers of Puget Sound. Significant point source contributors of this pollution include wastewater treatment plants, sewer overflows and storm sewers, urban runoff, pulp and paper processors, oil refineries, chemical manufacturers, aluminum mills, electric utilities, and food processors.[14]

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[12] See Environment 2010.

[13] As used in the state's water quality assessment, the term "beneficial use" refers to the attainment of the Clean Water Act goals of a water body being "fishable" and "swimmable." "Impaired" means a water body that does not support or only partially supports its beneficial uses. "Threatened" water bodies currently meet Clean Water Act goals, but are in danger from adjacent activities of slipping into the "Impaired " category.

[14] A number of planned activities may seriously affect water quality in the near future. Such activities include: (1) increased land development and recreational potential of the Hood Canal and San Juan Island areas; (2) urban development and the possibly large influx of people to the

Fifteen principal municipal dischargers are located in Washington's coastal zone, while twenty-five major industrial dischargers fall into the coastal area. Eighteen of the twenty-five are lumber or pulp mill related, which perhaps pose the most serious threats. Pulp mill discharges contain several categories of pollutants, including pathogens, suspended solids, and toxic organics (Environ. 2010). These pollutants contaminate fish and shellfish habitat. Many of the toxic organics bioaccumulate in fish and shellfish, posing a cancer risk to humans who consume the contaminated fish.

(3) Alaska

Despite the tragic contamination caused by the Exxon Valdez disaster, water quality in Alaska generally is good. Man-induced stresses, such as domestic sewage, industrial and commercial wastes including fish processing wastes, forestry waste, and waste or spillage from ships and small boats are potential problems in developed harbors and settlements. A waste disposal issue which recently has received special state agency attention is ocean and bay dumping of fish wastes from fish processing facilities.

c. Coastal Air Quality

(1) California

Sources of coastal air pollution include automobile emissions, industrial emissions, sewage treatment plants, agriculture, and forestry. Noxious odors and smoke are the principal air pollution deterrents to coastal recreation use. North coast pulp mills emit such odors and smoke, at times, strong enough to discourage recreational use in their vicinity[15]. Other heavy industrial uses, particularly those that are petroleum-related, also may contribute noxious odors. Southern California air quality has been adversely affected by emissions from offshore oil operations.

Kitsap Peninsula associated with the operation of the Trident Nuclear Submarine Base; (3) the heating of water in proposed nuclear electric power plants with once-through cooling; (4) the shipping of Alaskan oil through northern Puget Sound to the refineries at Anacortes and the Ferndale-Cherry Point area with the associated risk of oil spills; and (5) the continued urban and industrial development in the South Sound area which is already limited in its waste assimilating capacity by a low flushing rate and relatively shallow depth.

[15] The EPA recently listed two North Coast mills, see footnote 5 supra and accompanying text, as among the country's 205 most hazardous air polluters (Newsletter 1989).

(2) Oregon/Washington

Air pollution is not yet a significant problem along Oregon's coastline. The state's most recent air pollution inventory listed no nonattainment areas in the coastal zone. Point sources that do emit pollutants include pulp and paper mills near Astoria and Coos Bay, timber operations all along the coast, automobiles along Highway 101, and various sources related to what little urban development has occurred.

Due to the heavy concentrations of people and development in the area, serious air quality problems persist in the Puget Sound counties. Levels of carbon monoxide, chiefly caused by automobiles, in Seattle and Tacoma exceed the national health-based standards. Bellingham also suffers from significant carbon monoxide pollution, albeit to a much lesser degree than Seattle. Small particulates pollution--primarily from woodstoves and other wood burning--is another significant health concern. Expected increases in population may largely nullify recent legislative efforts in Washington to control air pollution.[16]

(3) Alaska

Air quality for the northern Gulf of Alaska is good to excellent with all areas meeting federal air standards. Most air quality problems in the gulf coastal zone are in Anchorage and on Kodiak Island. Seasonal dust and carbon monoxide problems exist in Anchorage.

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[16] Washington recently promulgated a law regulating the use of woodstoves that is arguably the most comprehensive in the country. The law requires that stoves sold in the state be certified as clean-burning, it restricts wood burning during periods of impaired air quality (as determined by local air pollution officials); and it requires that people burn only properly-seasoned wood. The new state law--with its focus on a large number of small sources and its reliance on voluntary compliance by individuals--could become a model for air pollution control in the 1990's.

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B. STATE GOALS FOR CZM RESEARCH, MANAGEMENT, AND PLANNING

1. Introduction

This section highlights ocean and coastal management goals of state, federal, private industry, and academic institution representatives on a state-by-state basis. These goals are derived from this project's questionnaire survey, instate meetings, regional workshop, and research by the investigators. Current and projected 309 funding levels limit significantly the ability of the regions 309 program to meet these goals solely on its own. However, through the 309 program's funding of this plan, priority problems are identified for attention under the 309 program, other relevant programs, and for increased interstate coordination efforts in the future. Within each state the goals are organized under (1) Research; (2) Management; and (3) Planning.

2. State-by-State Summary

a. Alaska

(1) Research

Water quality/Marine debris. Use remote sensing to identify and monitor sources of non-point water pollution such as urban and storm runoff and mining and timber operations.

Pilot project could monitor specific offshore or floodplain mining projects for a year to evaluate patterns of sediment discharge.

Study potential habitat damage from marine discharge of seafood processing plants, potential aquaculture operations, bilge pumps and other vessels. Consider regulatory, technological and public information options.

Develop community technology or a regional center to recycle marine garbage, especially fishing nets.

Assess the nature, amounts and potential threats of hazardous materials such as ammonia and chlorine being transported on the ocean. Develop appropriate emergency response guidelines.

Wetlands/Estuaries. Evaluate wetlands mitigation and restoration techniques.

Aquaculture/Mariculture. Evaluate aquaculture and mariculture permit and regulation requirements of other states or countries. Develop regional regulations. Establish siting criteria such as physical setting, gear and navigation conflicts, upland use considerations, water quality and aesthetics of aquaculture and mariculture projects. Study aquaculture operations in other states and countries.

Offshore oil and gas development. Assess West Coast spill response capability, equipment, personnel and contingency plans. Compare West Coast oil spill technology to that available in other production areas such as the North Sea and recommend ways to improve region's technology.

Assess the extent of regional marine oil pollution and implications for vessel design changes (such as ballast water systems and double bottoms), regulations, monitoring and enforcement.

Mining. Investigate the use of hydrocyclones to concentrate recoverable minerals, treat wastewater.

Evaluate regional mining mitigations and restoration techniques.

(2) Management

Information sharing. Create a regional data center or information inventory for states to share experiences with and solutions to common problems.

Conduct a short-term, regional personnel exchange between state agencies or within different offices of federal agencies to develop interstate, interagency emergency management and response agreements, personnel training, and information exchange.

Wetlands/Estuaries. Consider state and/or municipal assumption of the U.S. Army Corps of Engineers Section 404 program.

Offshore oil and gas development. Develop regional standards for oil and gas lease sales and transportation of petroleum products regarding design, contingency planning, response capability, risk assessment, cost-benefit analysis and state and community involvement in planning and decisionmaking.

Develop joint federal and state compliance monitoring of offshore oil and gas activity and petroleum transportation.

Regulate the clean up of abandoned oil and gas leases.

Evaluate regional marine traffic management.

Mining. Revise regulations for testing and maintaining water quality, especially for offshore gold mining. Review how other states regulate mining projects.

Appoint regional federal-state task force to clarify jurisdiction over intertidal beach mining.

Hazards. Adopt regional approach to integrating national erosion zone management standards into state coastal management programs.

Classify West Coast coastal barrier islands and develop regional approach to implementing the federal Coastal Barriers Resources Act.

Consider use of state or local entity to condemn threatened structures.

Fisheries. Update fisheries management policies.

(3) Planning

Wetlands/Estuaries. Develop a regional strategy responding to the federal "no net loss" policy for wetlands.

Establish a statewide wetlands task force of federal and state agency officials, scientists, and industry and community representatives to recommend a statewide plan for wetlands identification and management.

Offshore oil and gas development. Create a community oil spill response model with equipment and training needs and user fees for funding.

Develop regional strategy for state management of oil and gas resources in territorial sea.

b. California

(1) Research

Animal research. Screen marine mammal (seals, sea lions) tissue for toxic bioaccumulation.

Research die-off rates of indicator organisms and pathogens under different conditions.

Quantify Norwalk virus.

Water quality. Measure coliphage in storm drains and investigate sources to determine the validity of its use as a human specific indicator.

Develop cost-effective analytical techniques for dioxin.

Evaluate waste disposal options comprehensively (land, water or air).

Research carefully both the need for dredging navigation channels and how to dispose of safe spoil.

Wetlands/Estuaries. Consider the benefits of coastal wetlands for commercial fisheries. Consider the impact of watershed problems in one state upon another.

Fisheries. Study feasibility of using older ports for fishing needs.

(2) Management

Information sharing. Need interagency communication. Legislators need to coordinate policies, be aware of conflicts and avoid creating gaps in legislation.

Prepare a vehicle for communicating between states, local, regional, state and federal elected officials and agencies, the media, educational institutions and interest groups.

Water quality/Marine debris. Coordinate research on storm water systems with EPA. Educate the public on controlling urban runoff.

Wetlands/Estuaries. Extend the coastal zone to include whole watersheds and upland areas, not just wet areas.

Focus on restoration rather than protection.

Improve effectiveness of implementation of wetlands protection laws.

Offshore oil and gas development. Assess risks and define response capabilities and limitations.

Determine who has or should have the authority in spill, transportation situations.

Make available to other states information learned in Alaska from the Valdez spill via forums, workshops and bibliographies.

Fisheries. Assure renewability with proper management and habitat protection.

(3) Planning

General policy formation. Use Local Coastal Plans.

Present current and future issues to the public for informed public involvement.

Hold a joint hearing on policy formation.

Identify differences between local values and goals regarding ocean priorities.

Encourage legislature, governor to articulate state policies.

Identify someone in the executive branch to coordinate state ocean management efforts. Allocate staff time to this task. Create a work group that provides coordination, suggests policy and program priorities.

Initiate similar federal effort to provide coordination between states.

Conduct state and local workshops to keep local government informed, respond to local concerns, and provide technical assistance.

Develop a state ocean plan with goals, values, policy statements and use as a basis for management.

Develop a Pacific Coast coordinating group.

Oil and gas development. Develop West Coast oil spill readiness plan.

Emphasize energy conservation efforts.

Maintain facilities for sport/commercial fishing.

Maintain public trust of commerce, navigation and fisheries. Assure constant access to fishing resources.

Develop consistent state oversight, policies regarding port development. Balance regional development to avoid duplicative expenditures.

Preserve small family-oriented fishing businesses by assuring these operations have a fair share of port facilities, access to fishery resources and mitigation/ compensation measures developed to resolve oil and gas development conflicts with the fishing industry.

Do not promote buying out of fisheries to resolve oil and gas conflicts. Instead, replace and develop new gear, markets, etc.

Develop new fishing industries (salmon and sea urchin trade to Japan).

c. Oregon

(1) Research

Basic research. Mineral and living resource data, e.g., inventories mandated by Goal 19.

Coastal and littoral processes.

Follow-up studies identified in 1988 MMS symposium.

Tectonics, seismicity, tsunami, subsidence.

Long-term wave climate/storm monitoring.

Deep ocean food web evaluation.

Impact of commercial harvest on food web.

Research in recreational fishery and marine mammal programs.

Sea-level rise.

Micro-coastal surface water circulation patterns.

Dredging/disposal effects.

Wetlands/Estuaries. Create coordinated framework for coastal and estuarine studies.

Define critical habitats for important fish and shellfish in estuaries.

Estuarine sediment dynamics and contamination.

Metal contaminant effects on biotic resources of estuaries resulting from shore-based placer mineral processing plants.

Understand development of coastal wetlands.

Salinity and physical properties of estuaries.

Offshore oil and gas development. Nearshore circulation related to oil spills.

Monitor chronic effects and improve technology for air quality and oil spill cleaning.

Air quality models of offshore to onshore from oil and gas platforms.

(2) Management

Specific management needs. Develop a permit process for black sands.

Amend beach bill to require evaluation of effect of coastal structures on physical processes, sand supply.

Review mitigation requirements for shallow subtidal.

Give state Department of Energy authority over energy-related development like storage farms, off-loading.

Regulate, enforce and provide public information to reduce marine debris and improve water quality.

General management needs. Establish communication between related agencies.

Involve citizens in environmental monitoring and inventory.

Consider coastal management implications of offshore development.

Protect coastal wetlands and shoreline.

Expand existing energy facility siting process to include coastal/offshore.

State must decide how to coordinate with federal agencies on state, regional, and international laws and policies affecting water quality and fisheries.

Co-manage EEZ resources and share resources with federal government.

Implement ocean resources and marine debris plans.

Assist ports and marinas regarding recycling and integrated waste management.

Create regional mechanism to coordinate state actions on shared problems via Pacific Northwest Coastal Managers Assoc.; OMNET; sectional meetings at coastal zone meetings.

Hold instate forums hosted by university marine resources programs involving scientists, planners, agencies and citizens. Forums would result in smaller delegation to represent state at interstate planning conference retreat organized by the university programs and rotated between the states.

Establish coastal management council with federal, state, industry, and public members.

(3) Planning

Oil response: address the who, what, where, and how much questions; assure sufficient dollars for quick, well-planned response; clarify state agency roles.

d. Washington

(1) Research

General research needs. Fill in gaps in assessment of offshore resources.

Research habitat mitigation banking.

Research effects of outer continental shelf development on nearshore waters and coastal management.

Map offshore resources and environmental monitoring stations in inshore areas and harbors.

Research effects of seismic surveys.

Water and air quality/Marine debris. Research effects of sublethal toxicity in estuaries and fisheries.

Research micro-coastal surface water circulation patterns. Create air movement and air quality models for offshore to onshore flow from oil and gas platforms. Assess contribution of oceans to global warming.

(2) Management

General management needs. Expand proposed boundaries of newly designated National Marine Sanctuary.

Create regional mechanism for Pacific Coast states to coordinate actions on shared problems. Consider creating Coastal Management Council of federal, state, industry and public representatives to discuss specific issues at meetings. Fisheries management should be excluded. Beware of too much regionalization which won't be useful in different ocean and coastal environments.

Wetlands/Estuaries. Coordinate with Oregon on scientific research, management and planning concerning Columbia River Estuary.

(3) Planning

Offshore oil and gas development. Oil spill legislation.

Oil spill contingency plan.

Develop a liquid fuels energy policy.

Ban oil development in state waters permanently.

Encourage petroleum exploration and development coupled with environmental and impact mitigation planning.

Develop cost-effective environmental protection methods that industry can afford for oil drilling in coastal zone.

Legislation. Amend Coastal Zone Management Act and OCSLA to extend state ownership out to 12 nautical miles.

Increase enforcement capabilities for state and federal regulatory agencies, especially regarding non-point source pollution.

Integrate marine policies into land use legislation.

Adopt stable funding for conservation/environmental programs.

Protect wetlands.

Pass a federal ocean policy to define state and federal direction in ocean management.

3. Conclusion

Although the four west coast states have distinct and diverse research, management and planning agendas, there are some common objectives. Assessing oil spill response capability and developing an oil spill contingency plan was a critical research, planning, and management goal for representatives in each of the four states. In addition, representatives listed assessment and mapping of offshore ocean resources as an important goal and the need for improved interstate and interagency information sharing as an important management goal. These common goals are reflected in several elements of this project's regional plan above.

C. FEDERAL AND STATE PROGRAMS ESPECIALLY RELEVANT TO CZM

This plan identifies regional needs whose funding exceeds the amounts currently available through the 309 program. Thus other federal and state programs which can assist in meeting those needs are reviewed in this section of the plan. This section also helps avoid duplication and overlap with other programs in the funding of 309 projects. As discussed further in connection with information exchange, priority uses of 309 funds can include coordinating the flow of CZM information generated by projects funded by other sources.

1. Minerals Management Service Environmental Studies Program

a. History and Statutory Mandate

The Secretary of the Interior initiated the Outer Continental Shelf (OCS) Environmental Studies Program in 1973 to investigate environmental features of the Gulf of Mexico. In anticipation of the 1978 amendments to the OCS Lands Act of 1978 which would require procedures for environmental studies implementation, the Bureau of Land Management (BLM) commissioned an ad hoc advisory committee to prepare a national studies design for continued nearshore and onshore environmental studies. The committee's recommended "Study Design for Resources Management: OCS Oil and Gas Development and the Environment" was adopted by the Department of the Interior (DOI) in April 1978. A major tenet of the study design was that the OCS regional offices were capable of coordinating federal, state, and local agencies and scientific communities in order to identify regional issues related to OCS minerals development (MMS, 1988).

The 1978 amendments to the OCS Lands Act provided the first statutory mandate for environmental studies in support of offshore minerals development (43 U.S.C. 1346). This section of the Act requires studies to be commenced at least six months prior to holding a lease sale in the OCS. The purpose of the studies is to assess and manage environmental impacts on the human, marine, and coastal environment of the OCS and the coastal areas which may be affected by oil and gas development in such areas. In addition, the program is intended to provide a basis for monitoring of OCS operations (43 C.F.R. 3301.7) with studies of the human, marine, and coastal environment designed to provide time-series and data-trend information.

Studies are directed at various scientific disciplines in order to fully understand environmental impacts of oil and gas development in the OCS. Study disciplines in the Pacific OCS region include air quality; physical oceanography and meteorology; fates, effects and chemistry; biology and ecology; endangered species; social and economics; and program support (MMS, 1988).

The MMS's branch of environmental studies in Washington, D.C. provides overall management of the program nationwide. Four OCS regional offices administer the program regionally. Each regional office corresponds to four OCS areas: Alaska, Atlantic, Gulf of Mexico, and Pacific. MMS, through annual agreements with the Department of Commerce's NOAA, uses NOAA's OCS Environmental Assessment Program located in Anchorage to administer a portion of the Alaska program (GAO, 1988).

b. From Issue Identification to the National Studies List

Issues meriting environmental studies in the OCS and subsequent study proposals to resolve those issues can be identified through various channels: (1) OCS advisory groups; (2) government agencies; (3) private companies or organizations; and (4) private individuals. However, MMS identifies most of the issues for itself. OCS Policy and Scientific Advisory Committees, as well as regional technical working groups, provide guidance to DOI concerning the program (MMS, 1988). How well the program has achieved its goals is currently being studied by the Committee to Review the OCS Environmental Studies Program of the Board of Environmental Studies and Toxicology of the National Research Council.

MMS translates issues into "decisionmaker questions" based upon the informational needs of the various steps in the OCS decisionmaking process. The OCS Scientific Advisory Committee translates "decisionmaker questions" into "study topics" through an analysis of scientific and technical feasibility and information availability by the OCS Scientific Advisory Committee (MMS, 1988).

After MMS scientists make a preliminary review of proposed study topics, MMS circulates pertinent study topics to other federal agencies (USGG, FWS, NOAA, etc.) for critical evaluations. Furthermore, MMS actively solicits reviews by academic, state, and industry scientists. MMS uses ranking criteria developed by the DOI and OMB to rank study needs. Eventually, MMS compiles a national studies list of proposed MMS study topics based upon "national studies criteria" (MMS, 1988).

The national studies list identifies program study needs to be initiated in the next fiscal year as well as ongoing, multi-year studies which require annual funding approval (GAO, 1988).

c. Funding

Congress grants MMS annual appropriations for the Environmental Studies Program. As of 1988, the overall national program budget has been $500 million throughout the program's history (MMS, 1988). The funding level for the fiscal year 1988 was $22.8 million, down from a high of $55.6 million in 1976. The decline in funding can be attributed to several factors including reduced industry interest in the OCS and a declining number of lease sales (GAO, 1988).

The Alaska program has received about 1/2 of the total funds since fiscal year 1973 (GAO, 1988). The Pacific OCS has received about $68 million since fiscal year 1973. The 1988 budget for active studies in the Pacific OCS region was $28 million (MMS, 1988). The estimated budget for the Alaska OCS was $7.3 million in 1988 (GAO, 1988). In fiscal year 1989, Alaska received approximately 32 percent of the funding while the Pacific OCS region received about 31 percent. For fiscal year 1990 Alaska should receive approximately 26 percent and the Pacific OCS about 29 percent.

The Draft Environmental Studies Plan for the Pacific OCS covering FY 1991-92 includes a list of 46 proposed studies, nine of which are continuations of currently funded studies (MMS, 1989a). The Draft Alaska Regional Studies Plan for the FY 1991-92 includes a list of 42 proposed studies, 20 of which are continuations (MMS, 1989b). Funding levels will determine which studies actually receive MMS funding.

A review of the most current lists of study topics indicates that MMS funds a broad spectrum of marine and coastal science projects, many of which address isolated and specific issues relating to mineral development in the OCS. Similar scientific studies that have been funded in the past by 309 funds could be directed to the MMS environmental studies program, leaving the limited 309 funds for interstate coordination in the development of CZMP's.

However, some of the studies listed above are to some degree germane to 309 because they address problems affecting more than one state and directly involve coastal zone management. Some of the continuing studies proposed for the Pacific OCS that are relevant to 309 are discussed below:

1. A Summary and Database of Washington-Oregon Coastal Ecology. This study attempts to compile a comprehensive source of information on the existing environmental conditions and marine resources of the Washington-Oregon coastal zone that in the form of an accessible computer database and mapping system, with a hard copy bibliography and review/synthesis volume as an interim product. The sources of the information compiled would be currently available papers, reports, and raw data from state and federal agencies as well as academic institutions.

2. Interannual Variability of Oceanographic Conditions and Circulation Washington-Oregon Coast. The objectives of this study are: (1) designing a database system; (2) collecting the existing data and putting it into the system; (3) using the system to characterize the year to year variations in oceanographic conditions along the coasts of Washington and Oregon.

3. Pacific OCS Marine Mammal and Seabird Database. This study seeks to establish a central clearinghouse for current information on the numbers and distribution of marine mammals and seabirds in the Pacific OCS Region. The database would be continually updated and be available to other researchers in addition to MMS (MMS, 1989a).

New studies proposed to MMS for the Alaska OCS Region that are relevant to 309 include:

4. Analysis of Social Change Influenced by OCS Activities. The objective of this study is to analyze and increase the utility of available data regarding the changes in the human environment as a result of major federal action in the OCS.

5. Risk Perception of the Sociocultural Consequences of the Alaskan OCS. This study seeks to investigate local perceptions of the risks associated with major federal actions in the OCS and document the changes in the human environment as a result of federal OCS activities including the long term consequences of the Exxon Valdez oil spill (MMS, 1989b).

These studies have been discussed for the purpose of illustration and this list is not exhaustive. Other proposed new studies that are contingent upon funding levels address subjects that involve more than one state int he Northeast Pacific Coast Region. These studies funded under the environmental studies program will also help in the coordination of interstate coastal zone management and provide information important to more than one Pacific coast state. Many of the studies proposed for the Alaska OCS Region involve scientific studies of the effects of mineral development on living resources of the Alaskan coastal zone. Also, the Alaskan environmental studies program targets several issues involving the fates and effects of oil spills and pollutant transport in the marine areas off of Alaska. Much of what is learned in these Alaskan studies may be applicable to interstate coastal zone planning. However, these studies will only be funded if sufficient funds are allocated to the environmental studies program.

d. Relationship to 309 program

The Environmental Studies Program can sponsor major offshore research projects relevant to state coastal managers in the region which are beyond the funding capabilities of the 309 program. However, 309 projects can serve as pilot projects for environmental studies projects. As a good example of the interplay between 309 and other funding programs, Starr's 1987 309 Fishery Resource Mapping project

listed in TABLE 1 led to a $400,000 follow up study funded by the Pacific OCS Environmental Studies Program. Because all projects proposed for funding by the environmental studies program are not funded, meritorious projects meeting 309 program needs should be considered for scaled down funding under the 309 program. Similarly, meritorious OCS-related 309 proposals which cannot be funded should be referred to the environmental studies program.

2. Saltonstall-Kennedy Grants

a. Introduction and Statutory Mandate

The Saltonstall-Kennedy (S-K) Act, 15 U.S.C. 713(c)(2)-(c)(3), provides to the Secretary of Commerce up to 30 percent of the gross receipts collected under the customs laws from duties on fishery products for grants for research and development projects (NOAA, 1989a).

S-K funds are available to assist persons in carrying out research and development projects which address aspects of the U.S. fishing industry. The funds are available for research and development related to (but not limited to) harvesting, processing and associated infrastructures. "Fishing industry" includes both the commercial and recreational sections of U.S. fisheries (NOAA, 1989a).

b. National Funding and Regional Funding Priorities

There is no guarantee that funding will be available for approved projects. However, NMFS estimated that about $4.4 million would be available for fiscal year 1989.

NMFS identifies funding priorities through consultation with a wide cross section of the U.S. commercial and recreational fishing industries, states, and fisheries management councils. The priorities are identified on a regional basis. Priority areas that will be targeted for funding are those that would be beyond the scope of any single entity within the fishing industry without assistance from the government. Fisheries research and development should relate to one or more of the priority areas in the Regional and National sections (NOAA, 1989a).

Studies that have recently received S-K grants include:

1. Developing Recreational Fisheries in Northwest Coastal Communities: An Information Base for Private and Public Sector Strategies for Recreational Fishing Management and Development.

2. Study of the Mortality of Hook and Line Caught Salmon.

3. Processing Groundfish Carcass Waste into Fish Feed.

4. An Inventory of Vessel Stability for Smaller Commercial Fishing Vessels.

5. Feasibility Study for a Gear Testing Facility.

6. Competitiveness of the Northwest Fishing Industry.

7. An Economic Analysis of the Pacific Salmon Industry: Effects of Salmon Farming.

8. Offshore Pacific Whiting: A Parasite Study.

As the titles of these studies suggest, the most recent S-K projects address various problems and needs of the fishing industry. These S-K studies are valuable to coastal zone management in the Northeast Pacific Coastal Zone because of the importance of the fishing industry to the economies of the states and the need to coordinate fisheries utilization and management efforts.

The Alaska region has focused its research and development efforts on the utilization of Alaska groundfish resources, stressing the development and application of technology. Oregon and Washington compose the Northwest region of the program. Research and development is to be focused on fully utilizing groundfish found in the EEZ off of Oregon, Washington, and Alaska. California is included in the Southwest region, mainland. Fiscal year 1989 priorities included test applications of new technologies for utilization of salmon runs, testing new fishing gear, and developing educational materials. Also, NMFS funded a number of national projects applicable to a number of fisheries and regions (NOAA, 1989b). Among other things, project descriptions must list existing federal, state, or local government programs or activities, including state Coastal Zone Management Plans, that the project would affect and describe the relationship between the project and these plans or activities (NOAA, 1989b).

c. Cost Sharing Requirements

NMFS provides between 50-80% of the total project costs. The non-Federal share may include funds received from private sources or from state or local governments of the value of in-kind contributions (noncash contributions provided by the applicant or third parties). Federal funds may not be used to meet the non-Federal share of matching funds except as provided for by statute (NOAA, 1989b).

d. Relationship to 309 Program

S-K funds, though not substantial in relation to some other programs, may be used for useful studies related to fisheries development and utilization. Fisheries studies undertaken with S-K funds can be useful to more than one of Northeast Pacific States, as fisheries are frequently interjurisdictional and utilization problems are frequently common to similar sectors of the industry. If a very important topic of common interest to more than one of the states' fisheries or industries did not receive S-K funding, it could be considered by NCRI and the regional CZM board. Otherwise, fisheries development projects are not considered a high priority for the region's 309 program.

3. NOAA Marine Sanctuary Program

a. Introduction and Statutory Mandate

The National Marine Sanctuary Program (NMSP) is administered by the Marine and Estuarine Management Division of NOAA under its ocean and coastal management program. The 1984 amendments of the Marine Sanctuaries Act set out the purposes and policies of the National Marine Sanctuary Program, establish specific procedures and criteria for designating sanctuaries and implementing the National program, and provide for increased participation by Congress, the Regional Fisheries Management Councils (when regulations on fisheries activities are affected), and other affected agencies or persons (NOAA, 1988b).

b. Purposes and Policies

Certain areas of marine environments possess conservation, recreational, ecological, historical, research, educational, or aesthetic qualities of special national significance. (16 U.S.C. 1431). The NMSP provides for comprehensive management and conservation of designated marine sanctuaries, including the support and coordination of scientific research involving the resources of marine sanctuaries. The Program stresses efforts to enhance public awareness, understanding, appreciation, and wise use of the marine environment. It encourages public and private uses of resources consistent with the Program's objective of protecting unique resources (NOAA, 1988b). Generally, decisions to designate areas as National Marine Sanctuaries are based upon the area's national and historical resource and human use values, the effects of present and future uses on these values and the effect designation will have on these uses, the adequacy of state and Federal management of the area, whether designation will ensure comprehensive management, the areas size and manageability, fiscal

compatibility, and public benefits (NOAA, 1988b). There currently are 3 sanctuaries on the West Coast: Channel Islands NMS, near Santa Barbara, California; Gulf of Farallones NMS, northwest of San Francisco, and Cordell Bank, located west of San Francisco. Proposed sanctuaries include Monterey Bay, California, Washington State Nearshore in Puget Sound, and the Western Washington Outer Coast. The FY 88 marine sanctuary budget was $2.3 million, of which $1.6 million was for projects, including management and research.

c. Relationship to 309

As discussed above, the National Marine Sanctuary Designation process involves state and local government entities and regional fisheries managers. Section 309 funds could be directed at shared marine areas to identify candidates for designation as well as studies in support of designation. 309 funded research should be coordinated with research in designated sanctuaries to avoid duplication.

4. NOAA Estuarine Reserve Research System

a. Authority and Background

The National Estuarine Reserve Research System (NERRS) is also administered by the Marine and Estuarine Management Division (MEMD) of the Office of Ocean and Coastal Resource Management (OCRM) of NOAA. Section 315 of the Coastal Zone Management Act (CZMA), 16 U.S.C. 1461, establishes the NERRS program and authorizes MEMD to make grants to any coastal state or public or private person for the purposes of supporting research and monitoring within the NERRS. NERRS consists of selected estuarine areas of the U.S. which are designated, preserved, and managed for research and educational purposes. The sites are designed to be large enough and protected well enough to ensure the effectiveness as a conservation unit suitable for long-term research.

b. Established Estuarine Research Reserves, Purposes and Priorities

Eighteen national estuarine research reserves have been established, including four on the west coast: (1) Elkhorn Slough, California; (2) Tijuana River, California; (3) South Slough, Oregon (Coos Bay area); and (4) Padilla Bay, Washington (NOAA, 1989b). None of these four is in an interstate estuary.

Research funds are primarily awarded to support management-related research that will enhance scientific understanding of reserve environments, provide information needed by reserve managers and coastal zone decisionmakers,

and improve public awareness of estuaries. Projects that will benefit more than one reserve in the system are encouraged (NOAA, 1989b). Five categories of research have been identified as being a priority to all coastal areas of the United States, including Alaska. These categories are: (1) water management, including allocation of freshwater resources and establishing the relationships between freshwater inflows and fisheries productivity; (2) sediment management; (3) nutrients and other chemical inputs; (4) coupling of primary and secondary productivity; and (5) estuarine fishery habitat requirements (NOAA, 1989b).

c. Funding

Funding is available on a competitive basis to any state, university, or qualified public or private individual to conduct research within national estuarine reserves. Research funds are normally awarded through a research grant (NOAA, 1989b). The approximate range of Federal funding per successful project has been between $10,000 and $40,000; for FY 1989, a cap of $50,000 Federal funding has been established. Federal funds requested must be matched on an equal basis by cash or the value of goods and services directly benefitting the project in accordance with federal funding requirements (NOAA, 1989b).

d. Relationship to 309

OCRM's Spring 309 Guidance document gives priority to projects involving research in designated NERR's. Studies addressing common problems should be the focus, and 309 funds could be used to coordinate identification of common problems that have not yet been addressed sufficiently such as some water quality and nutrient cycling issues. Furthermore, although the funding levels for individual studies are small relative to other federal programs, estuarine studies carried out under the NERRS program would be helpful to identify informational needs in addition to providing data pursuant to the studies. Those identified additional information needs could be addressed by projects funded by 309.

5. CZMA Section 306

a. CZMP Requirements

Section 306 of the Coastal Zone Management Act (CZMA) authorizes the Secretary of Commerce to make grants to coastal states so that coastal states may manage their federally-approved coastal zone management plans (CZMP's). States are required to match federal funds spent on their CZMP's on a 1:1 ratio. (16 U.S.C.A. 1455). State CZMP's must meet nine performance standards, including protecting natural resources;

managing coastal development; giving priority consideration for water dependent uses; providing public access; assisting the redevelopment of waterfronts and ports and preserving and restoring historic, cultural, and aesthetic coastal features; coordinating and simplifying governmental decisionmaking; consulting and coordinating with federal agencies, providing for the participation by the public and local governments in coastal decisionmaking; and comprehensive planning, conservation, and management for living marine resources, including the siting of pollution control and aquaculture facilities in the coastal zone. State CZMP's are periodically reviewed and the Secretary may withhold funds and withdraw federal approval if states fail to meet the national standards. (16 U.S.C.A. 1458).

b. Relationship to 309

Through similar missions and common personnel, state 306 programs and the region's 309 program are closely linked. As discussed above, state CZMP's are required to meet a number of performance standards. Requirements that are particularly relevant to 309 involve protection of resources that are not located within a single state, including wetlands, estuaries, beaches, dunes, and especially fish and wildlife, and their habitats. Interstate coordination efforts under 309 could help states protect these shared resources. Also, interstate cooperation funded by 309 could help the states incorporate region-wide goals and policies into individual state CZMP's. Improved coordination between the west coast 306 programs and the region's 309 program is discussed later in this plan.

6. Sea Grant

a. Introduction

The Program applies the intellect of U.S universities and research institutions to the problems and opportunities associated with the use of the oceans. The Program combines research, education, and advisory services and represents a partnership of government, university and industry. The Sea Grant network is comprised of 29 core programs and encompasses more than 300 universities and affiliated institutions involved in Sea Grant projects. A emerging target area for marine research under the Sea Grant program has been the coastal ocean. Sea Grant has the capability to pursue five areas of importance to understanding the coastal ocean: sediment and shoreline stability, coastal ocean mineral resources, fisheries recruitment prediction, impact of water quality on coastal resources, and marine biotechnology.

Within the Oregon Sea Grant program for 1989-91, projects by Dick Hildreth, Paul Komar, and Jim Good regarding state

ocean management, sea cliff erosion, and coastal erosion management are especially relevant to the 309 program.

Sea Grant studies address numerous subjects of regional importance. Many of the projects in the region address issues facing the aquaculture industry and fisheries development. Recent studies directed more specifically toward coastal zone management and relevant to 309 include:

California

Management Models of Wetland Wastewater Treatment Systems. This study will analyze the use of wetlands as wastewater treatment facilities with a goal of determining optimal operation and management policies for such systems.

Wastewater Wetlands: Pulsed Discharges to Protect Coastal Water Bodies. This project will seek ways of minimizing salinity fluctuations in coastal wetlands used to treat wastewater by releasing wastewater in pulses during outgoing tides.

Deterring Oil Spills: Optimal Policies. This study is aimed at determining the damage caused by oil spills and analyzing current pollution control policy. Also, the study will examine shipowner response to present regulations and recommend new policies to deter spills. (California Sea Grant, 1988).

Artificial Coastal Wetlands: How Well Do They Duplicate Natural Ecosystem Functions? This project sought to determine the ability of artificial salt marshes to duplicate the functions of natural coastal wetlands. (California Sea Grant, 1988).

Oregon

Problems and Processes of Sea Cliff Erosion on the Oregon Coast. This project will measure the long-term erosion rates of sea cliffs in areas effecting coastal communities to assist planning and development of coastal communities.

A Rational Analysis and Design Procedure for Rubble Mound Coastal Structures. This project proposes to make reliable estimates of wave-induced loads on coastal jetties, breakwaters, and groins. These estimates will be used to evaluate alternative materials for application to individual coastal structures.

Siting of Marine Diffusers. This study will develop a methodology to help decide the best and most feasible locations of marine outfalls. (Oregon Sea Grant, 1989).

Washington

Managing Adaptively: Early Experience in Western North America. This project will examine the adaptive management process, i.e., a management process that treats implementation as a series of experiments to probe uncertainties in the behavior of resource populations. The study will focus on the adaptive process as applied to Columbia River salmon by the Northwest Power Planning Council. The study will compare the effectiveness of the process to salmon management programs in British Columbia and Washington state.

Models of Water Quality Governance and the Puget Sound Experience. The current water quality management plan developed by the Puget Sound Water Quality Authority has run into difficulties in its implementation. This study will examine alternative management methods for managing water quality in Puget Sound. (Washington Sea Grant, 1989).

Alaska

Also, recent studies funded by Alaska Sea Grant have addressed numerous issues facing fisheries managers and the fishing industries. Some studies are particularly relevant to the region, such as:

Economic Aspects of the Allocation of Fisheries Resources. This study analyzed methodological issues in the valuation and allocation of fisheries between commercial and recreational uses.

A Dynamic Simulation Model of the United States Pacific Halibut Fishery. This study constructed an economic model of the U.S. Pacific halibut fishery, which is designed to be utilized by fisheries managers such as the North Pacific Fishery Management Council and NMFS.

Furthermore, Alaska Sea Grant funded a number of scientific studies of the environmental effects of the Exxon Valdez oil spill. These studies should prove to be valuable for regional coastal managers to develop management practices that take into account possible future oil spills that may affect the coastal zone.

b. Funding

Since 1971, Congress has appropriated about $39 million per year for Sea Grant. The FY 1987 budget was $37.3 million, 46% of which was slated for research. Congress appropriated an additional $2 million over the FY 1989 budget for the National Sea Grant College Program in 1990 (Nautilus, 1989b).

c. Relationship to 309

Sea Grant studies can address substantive categories that would otherwise be studied with funding from 309 funds, as they have been in the past. Wherever possible, research projects that address shared interstate resources and regional common problems should be pursued through the Sea Grant Program rather with 309 funds.

7. National Coastal Research Institute

a. Background

The National Coastal Resources Research and Development Institute (NCRI) was created in 1984 by Congress to address coastal economic stress following the 1979-82 recession. NCRI is a research and development program within NOAA and is administered by the Oregon System of Higher Education. The organic legislation calls for NCRI to conduct research and to carry out educational and demonstration projects designed to promote the efficient and responsible development of ocean and coastal resources including studies on economic diversification and environmental protection in coastal areas. For example, NCRI's "CZM Remote Sensing User's Guide" is a tool which coastal managers can use to assemble data to more effectively manage and coordinate uses of the coastal zone. The idea behind this comprehensive system is to use existing off-the-shelf data, information obtained from direct sampling, and remote sensed information to acquire sufficient information to manage coastal zone resources and make informed decisions relating to conflicting uses of coastal areas (Cordell and Nolte, 1988a). This remote sensing system has been used to identify areas suitable for aquaculture in coastal waters around Prince of Wales Island, Alaska. The study identified potential sites for cultivating Pacific oyster (Cordell and Nolte, 1988b).

NCRI is committed to using its resources in a way that will have the greatest impact on future economic and public well being of the coastal non-metropolitan communities. NCRI addresses pressing problems and economic needs of the coastal communities, complementing other federal and federally-supported ocean and coastal programs. NCRI focuses on linking research to developing technology with potential commercial application, and commercial application in economically important areas is a primary concern.

NCRI has identified five areas of priority for future projects: aquaculture/fisheries, new marine products, recreation and tourism, small business and community assistance, and seafood technology/waste management. NCRI has

identified the northwest, from Mendocino County, California to southern Alaska, as a region of primary focus.

b. Relationship to 309

NCRI studies often address economic development problems facing coastal communities of more than one of the states of the west coast region. Generally projects proposed for 309 funding which have an economic development orientation should be referred to NCRI for possible funding under its economic development grants program instead.

8. Corps of Engineers Shore Protection

a. Authority

Pursuant to federal legislation such as the Water Resource Development Act of 1986 (P.L. 99-662) the U.S. Army Corps of Engineers (COE) constructs shoreline protection measures to preserve shorelines and beaches.

b. Corps Policy

It is Corps policy to provide federal assistance for reducing damages to shorefront development and protecting coastal resources resulting from shore erosion, hurricane, and abnormal tidal and lake flooding by undertaking shore protection projects where such projects serve the public interest. The Corps will assist in the construction, but not the maintenance, of works to protect against erosion by waves and currents along the shores of the United States for preventing property damage and promoting recreation. Project proposals must be consistent with approved state CMP's to the maximum extent practicable. In the past, projects have been authorized for beach erosion control, shoreline protection, hurricane protection, and other storm protection (COE, 1989).

c. The Extent of Corps Involvement

The extent of federal participation in shore protection varies and is determined by the type of ownership and use, and the incidence and type of benefits of the shoreline. Publicly-owned shores or privately-owned shores with public benefits can receive 65% federal funding for hurricane and storm damage reduction, 50% for projects that prevent the loss of land, and 50% for projects to protect recreational uses associated with the shoreline, including parks and conservation areas. Non-federal interests (i.e. state and local government, private owners) must provide all lands, easements, rights-of-way, relocation, and dredged material disposal areas needed for shore protection projects. Non-federal interests generally receive a credit for the value of

these contributions against the non-federal cost share. The remaining balance of the non-federal share must be provided by the non-federal interest during the construction. Once structured, the non-federal interests are responsible for 100% of the operation, maintenance, replacement, and rehabilitation costs for shore protection projects (COE, 1989).

d. Project Development

The Corps may initiate preauthorization studies relating to shore protection with the authorization of Congress. Without specific congressional authorization, the Corps may initiate studies for projects which comprise a part of the Corps Continuing Authorities Program. Feasibility studies are conducted under a contract providing 50-50 federal/non-federal cost sharing. Postauthorization studies may be funded completely by the Corps or through cost sharing, depending upon the nature of the study (COE, 1989).

e. Relationship to 309

Regional criteria for identifying areas in need of shoreline protection could be developed through 309 funded studies.

9. Federal Floodplain Management Activities

At least 27 federal agencies are involved in various aspects of floodplain management in the U.S. Section 1302(C) of the National Flood Insurance Act of 1968 (P.L. 90-448) provided that the objectives of a flood insurance program should be integrally related to a unified national program for floodplain management and requested that the President submit proposals for such a unified national program. The President originally assigned the responsibility for developing the Unified National Program for Floodplain Management to the OMB and Water Resources Council which developed the Program in 1976 and revised the Program in 1979. In 1982 this responsibility was reassigned to the Federal Emergency Management Agency (FEMA). Following a series of executive orders and statutory directives, FEMA has developed the newest Unified National Program for Floodplain Management, published in 1986, and a 1987 addendum (Further Advice on Executive Order 11988 Floodplain Management) under which FEMA has attempted to coordinate federal, state, and local efforts in floodplain management. Coastal floodplain management can be viewed as a common problem facing all four states in the west coast 309 region as discussed in the Coastal Hazards plan element above.

10. Coastal Barriers Resource System

a. Authority and Current Status

The Coastal Barriers Resource System is administered by the DOI pursuant to the Coastal Barriers Resource Act, 16 U.S.C.A. 3501 (1985), P.L. 97-348. Presently the Coastal Barriers Resource System applies only to the Gulf and Atlantic coasts and the Great Lakes. However, Congress may extend the system to the west coast as it extended the system to the Great Lakes in 1988. A 1988 report to Congress identified coastal barriers on the west coast that served the same function as those found on the Atlantic and Gulf coasts (Higpeth, 1988).

b. Purposes of the System

The purposes of the act are to preserve human and natural resources associated with the coasts by restricting federal expenditure and assistance that may have the effect of encouraging development of coastal barriers and by considering the means and measures by which the long-term conservation of these natural resources may be achieved (16 U.S.C.A. 3501(b), 3504(a)). Undeveloped coastal barriers are defined in the act to be depositional geological features that protect landward aquatic habitats from direct wave attack, including the associated aquatic habitats, adjacent wetlands, marshes, estuaries, inlets, and nearshore waters (16 U.S.C.A. 3502(1)).

c. Relationship to 309

Funding from 309 could be used to study further the need to include Pacific coastal barriers in the Coastal Barriers Resource System. Also, 309 funds could be used to coordinate interstate efforts to study and preserve undeveloped Pacific coastal barriers should Congress decide not to include them under the act.

11. EPA National Estuaries Program

a. Authority

Section 317 of the 1987 Amendments to the Clean Water Act established the National Estuaries Program (NEP). Before these amendments Congress had identified in EPA appropriations four estuaries as estuaries of national significance, and small scale projects had already been undertaken. Section 320 of the Act provides that the governor of any state can nominate to the EPA any estuary that is in whole or in part in their state, to be designated as an "estuary of national significance" and request a management conference to develop a comprehensive management plan for the estuary.

b. Function of the NEP

Upon designation as an estuary, EPA convenes a "management conference" for that estuary. The conference is composed of federal, state, and local officials with authority to manage the estuary, along with special interest groups and the public. The conferences have five years to alleviate pollution problems in the estuary.

EPA and NOAA have come to an agreement on interagency management to avoid unnecessary duplication of efforts under NEP and the CZMA. Among other things, this agreement provides coastal managers with a voice in the NEP conferences. EPA has also agreed to comply with the federal consistency requirements of the CZMA, to the maximum extent practicable.

Though originally tagged a "pilot program," there are indications that the NEP will be a continuing non-pilot program with annual appropriations. Congress directed the EPA to give priority consideration to 11 estuarine areas including Puget Sound, Washington and San Francisco Bay on the West Coast. All 11 of these estuaries were in fact designated by the EPA as NEP estuaries. Santa Monica Bay, California was identified in appropriations legislation as to be given priority consideration; EPA subsequently added it to the Program.

c. Funding

The legislation makes federal grants available to public and private entities to assist with the costs of a research, surveys and other technical work needed to develop a management plan, to cover up to 75% of the cost of the research.

d. Relationship to 309

OCRM's Spring 1989 309 Guidance document gives priority to projects in NEP estuaries. The goals of the NEP involve both land use and water quality aspects: improved water quality in the estuaries, habitat protection, and land use control. Because the state CZM agencies are vital to these areas, their participation is undoubtedly needed to accomplish the NEP goals. State coastal zone managers can influence estuarine water quality in a way to accommodate EPA's NEP objectives, and 309 funds can be utilized to coordinate interstate efforts to accomplish the EPA's task. The Columbia River Estuary is the region's principal shared interstate estuary which would benefit from interstate coordination of coastal managers to meet EPA's objectives.

12. EPA Near Coastal Waters Initiative

The EPA's Near Coastal Waters (NCW) initiative is similar to the NEP in that the EPA, in cooperation with the states, will seek to address the declining state of the coastal marine environment. EPA will be working with agencies not traditionally thought of as having influence over water pollution, such as fish and game agencies, public health agencies, coastal planning agencies, agriculture, and other areas. As with the NEP program, interstate coordination in the coastal zone made possible with 309 funds and studies funded by 309 will enable EPA to accomplish its goal of improving the quality of the near coastal waters through interstate cooperation. The states will reap benefits from cleaner near coastal waters in many ways, some obvious and others more intangible.

One of three state pilot projects in the nation under this EPA initiative is an "Action Plan for Oregon Estuaries and Ocean Waters" managed by Krystyna Wolniakowski of the Oregon Department of Environmental Quality. The methodology developed by the project for improving coastal water quality should be reviewed by the 309 program for use on a regional basis.

The EPA's Office of Marine and Estuarine Protection (OMEP) completed a strategic plan for Near Coastal Waters at the EPA Administrator's request in 1987. Coastal experts from federal, state, and local coastal managers were involved in developing the plan. The long-term plan extends the experience and success achieved through the Great Lakes, Chesapeake Bay, and National Estuaries Programs. It provides a management framework for complete coastal ecosystems of coastal waters that have problems similar to those experienced in the current estuary programs. The plan's goal is to protect and, where possible, enhance near coastal water quality.

To implement the plan OMEP will identify areas that need additional management attention, encourage federal and state managers to use existing tools and resources, and help implement new federal, state, and local management tactics for improving the near coastal environmental water quality.

OMEP has undertaken four priority projects under the Near Coastal Waters initiative:

1. A national assessment of the environmental status and trends of all near coastal waters to identify those that need additional management attention. With this assessment, OMEP will assist the EPA's regions and state authorities in developing regional coastal strategies.

2. Selecting pilot projects to demonstrate innovative management strategies. One of the pilot projects already undertaken is "Action Plan for Oregon Estuaries and Ocean Waters," managed by Krystyna Wolniakowski of the Oregon Department of Environmental Quality.

3. A technology transfer initiative through which OMEP can informally transfer and receive key information on coastal problems and strategies. The national network will involve environmental managers in coastal states, counties, and local governments.

4. The examination and expansion of existing coastal regulatory authorities within the EPA. (EPA, 1989).

The methodology developed by pilot projects for improving coastal water quality under the initiative should be reviewed by the 309 program for use on a regional basis. Also, the 309 program can utilize information and technology transfer made available through OMEP.

13. Interjurisdictional Fisheries Act

a. Introduction

The Interjurisdictional Fisheries Act of 1986 (IFA) establishes a formula-based financial assistance program to promote the management of interjurisdictional fishery resources throughout their range. (16 U.S.C. 4101 et seq.). The Act authorizes the Secretary of Commerce to apportion federal funding to states in proportion to the size and value of a state's fishery resources, up to 6% of the total funds appropriated to the Commerce department under the Act. (NOAA, 1988a). States are required to match federal funding for more than 25% of the projects costs, unless the state has adopted a fishery regulation which the Secretary has determined to be consistent with the Federal fishery management plan for the species to which the project applies, in which case the federal funding may cover up to 90% of the project cost. Project proposals may be submitted by interstate fishery commissions such as the Pacific Marine Fisheries Commission headquartered in Portland, Oregon. The Secretary may also distribute funds for disaster assistance in the event of a commercial fishery failure (NOAA, 1988a).

b. Relationship to 309

The Northeast Pacific states have several inter-jurisdictional fisheries, some of which are not effectively managed through an interjurisdictional management regime, e.g. shrimp. (Hildreth and Good, 1987) The states should apply

for federal research funds under the IFA to improve interstate coordination in managing such fisheries. So long as Congress continues to appropriate significant funds under the IFA, 309 funds generally should not be used for interjurisdictional fisheries management.

14. Land and Water Conservation Fund

The Land and Water Conservation Fund Act of 1965 allocates funds to the Department of the Interior for distribution to state and local governments for planning and developing recreational facilities. This Act, along with the Emergency Wetlands Resources Act of 1986, can be used by federal and state agencies to acquire lands for outdoor recreation and for endangered species (Nautilus, 1989a). The U.S. Fish and Wildlife Service recently prepared a National Wetlands Priority Conservation Plan to guide future wetlands acquisition efforts. The plan will help local agencies and the private sector identify wetlands suitable for protection through measures other than fee title land acquisition. It will help the states meet the Act's requirements to address wetlands as an important outdoor recreation resource in their statewide outdoor recreation plans (Nautilus, 1989a). Land and water conservation funds are largely derived from OCS oil and gas revenues, motorboat fuel taxes, and from federal surplus sales. 1987 amendments extend funding through 2015 and carry an annual authorization of $900 million. (16 U.S.C. 4601).

Through interstate cooperation among the west coast states, critical coastal areas can be identified through 309 regional management efforts. The states can focus their efforts on coastal zone wetlands that should be candidates for acquisition or other methods of protection such as development permit restrictions imposed by federal, state, and local permitting authorities.

15. USGS/NOAA EEZ Seafloor Regional Mapping Effort

NOAA and the United States Geological Service (USGS) have engaged in a cooperative effort to map the seafloor of the EEZ. NOAA and USGS entered into a Memorandum of Understanding (MOU) establishing the responsibilities of each agency for mapping the EEZ. The agencies also have a joint EEZ program office to coordinate activities with informational needs of other agencies, academia, and the private sector, and to conduct other administrative functions related to EEZ mapping. Mapping of the EEZ adjacent to the four west coast states should be left to this and other programs rather than supported with 309 funds.

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VIII. APPENDICES

A. OCRM SPRING 1989 309 GUIDANCE

B. SAMPLE QUESTIONNAIRE

C. SUMMARIES OF INSTATE MEETING IN EACH STATE

D. PARTICIPANTS LIST, AGENDA, AND DRAFT PLAN OUTLINE FOR REGIONAL WORKSHOP

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APPENDIX A

NOAA/OCRM SPRING 1989

SECTION 309 GUIDANCE

Background

The 1976 Amendments to the Coastal Zone Management Act of 1972, as amended (CZMA), authorized Section 309 entitled, "Coastal Zone Management Interstate Grants." The purpose of Section 309 is to provide funding for improving interstate planning in coastal management through coordination between neighboring coastal states and between Federal and state entities.

The intent of Section 309 is clearly stated in the language of the Act. The regulations stated at 15 CFR Section 932 require projects to:

* Coordinate plans, policies, and programs in contiguous areas of the coastal states;

* Study, plan, and implement compatible coastal zone policies with respect to such contiguous areas; and

* Establish effective mechanisms for the identification, examination, and/or cooperative resolution of mutual problems with respect to the marine and coastal areas which affect the applicable coastal zone. Particular consideration is given to the establishment of Federal/ State consultation procedures.

The Section 309 Interstate Grant program is administered by NOAA's Office of Ocean and Coastal Resource Management (OCRM). The following Section 309 Guidance was prepared by OCRM.

Requirements

General

All grant proposals should address mutual problems or issues related to two or more states in a region and should identify the interstate solution(s) and/or cooperation to accomplish the objectives of the project(s). As indicated below, projects covering shared waterbodies or estuaries with clearly identified needs for interstate solution(s) will receive highest priority. National or regional projects which require interstate cooperation but not necessarily interstate solutions will also receive consideration, but lower priority.

All proposals containing research projects or studies must be multi-state in nature, not separate state research needs combined into one application. Under this program, the Secretary of Commerce is precluded from funding any work activity performed by an interstate entity on behalf of only a single coastal state (15 CFR Section 932.3(e)).

Pre-application Consultation

Early consultation among coastal states is necessary and encouraged by OCRM. Applicants should define regional needs, the value of the end products, and establish priorities at the earliest opportunity.

It is highly recommended that states or interstate entities consult with OCRM staff prior to submitting a formal application (15 CFR Section 932.21). As part of the consultation process, OCRM also strongly encourages applicants to submit a draft application. The omission of a draft application does not preclude the possibility of a favorable review, but the addition of a draft application will greatly enhance OCRM's ability to identify a project's strengths and aid in correcting any weaknesses prior to the final submission.

Formal Submission For Interstate Awards

Application Requirements

1. The applicant must respond to the program narrative requirements as indicated in 15 CFR Sections 932.41-42. The application must include:

   a. a clear description of the contiguous area covered by the application;

   b. a general discussion of the purposes of the grant and the relationship of the grant proposal to approved Section 306 programs in the participating states;

   c. a discussion of anticipated results and how the results will be integrated into the Section 306 programs of each affected State; and

   d. a clear detailed description of each task and how it will be accomplished, the estimated total cost for each task, and the estimated total months to complete each task. (15 CFR Section 932.42(d)(4)).

Technical Requirements

1. The Federal share of the application shall not exceed ninety percent of the total cost of the interstate project. The ten percent match required of the applicant may be provided in cash or in-kind services. A brief description of the composition and source of the matching share is required (15 CFR Section 932.40(b-d)). However, the budget included in the application must reflect the total cost of the proposed project.

2. The application must include support letters from either the heads of designated state agencies of the coastal management programs or by the Governors of affected states. The letters must meet the requirements of 15 CFR Section 932.42(b)(1-4)).

3. All applications are subject to the provisions of Executive Order 12372 which pertains to intra-state review or other clearinghouse review activities (15 CFR Section 932.42 (a and c)).

Selection Criteria

OCRM staff will review each application to determine whether the proposal meets the minimum requirements as described on pages 1-2 of this document. Applications meeting the minimum requirements will be reviewed against the following criteria and scored on a scale of 1 to 100. This score will provide the basis for funding decisions.

Total Points

30 1. Highest priority consideration will be given to proposals which demonstrate the urgency of an interstate problem; describe the need for an interstate solution; cover an area with a shared waterbody, or an estuary that has a clearly identified need for an interstate solution. Projects or studies which require interstate cooperation but which will not necessarily solve specific interstate problems will be given lower priority. Also, priority consideration will be given to the following projects:

(a) Estuarine research projects which use the National Estuarine Reserve Research System (NERRS) under Section 315 of the CZMA;

(b) Projects affecting estuaries where management conferences have been convened as part of the National Estuary Program (NEP) of the Environmental Protection Agency[1] and;

(c) Projects which seek to transfer knowledge or experience acquired under the NEP or NERRS to other estuaries. However, these

[1]The Chesapeake Bay Estuary and the Great Lakes were the precursers to the NEP and the model for which the NEP was based. Therefore, these waterbodies will receive the same priority as if they were part of the NEP.

applications must meet the Section 309 requirements and demonstrate how the project will effectively assist in the implementation of more than one state's coastal management program.

Total Points		
25	2.	The proposal clearly demonstrates a strong likelihood that each affected state will implement the conclusions and recommendations of the project or study.
20	3.	The project clearly meets the objectives, goals, and policies of each participating Section 306 program (but does not "supplant" 306 funds) and the national policy objectives as set forth in Section 303(2)(A-I). Projects which include a State-Federal consultation process pursuant to 15 CFR Section 932.12 will be given priority consideration. OCRM may, in advance of any proposed solicitation, identify particular national policy objectives which will receive special consideration.
10	4.	The proposal must describe the qualifications and past work experience which demonstrates the applicant's ability to accomplish the goal of the proposal. Existing interstate entities will be given funding priority over temporary interstate entities created pursuant to 15 CFR Section 932.12.
10	5.	The proposal clearly identifies the objectives, the work program and the end products from each task.
5	6.	The proposal provides evidence that the project is likely to be completed within a twelve-month period and will not require additional Section 309 funding for completion.

OCRM Review Procedures

Initial Eligibility Review

All applications received prior to the deadline will be initially screened for eligibility. A proposal is ineligible if:

a. It is postmarked after the deadline.

b. The applicant is an ineligible entity (15 CFR Section 932.11).

c. The activities proposed are not eligible under Section 309 (see 15 CFR Section 932.1 and 932.2).

d. The application does not meet either the application or technical requirements of the regulations.

Review Procedures and Application Schedule

All grant applications will be initially reviewed by a panel of OCRM staff. All applications meeting the minimum standards will be sent to at least one outside source, including representatives of other Federal agencies, for peer review and comment. As appropriate and based on the availability of peer reviewers, more than one peer reviewer will be the preferred policy. All reviewers will be asked to make their comments in writing and will be asked if their identity may be made known to applicants. Applicants will have ten days to respond to reviewers' negative comments.

Based on the criteria and reviewers' comments, OCRM will evaluate and score the projects on a scale of 1-100. All application scores and recommendations for funding will be forwarded to the Chief of the Coastal Programs Division, who, after consultation with the review panel, will make the final recommendations on funding levels.

Applicants may also be requested to provide additional information throughout the review period.

The following general schedule will be used:

1. Pre-consultation with OCRM by January.

2. Submit final applications to OCRM by March 30.

3. Award grants July through September.

Notification

All applicants will be notified as to the outcome of their applications following the Financial Assistance Review Board's review and approval of the applications.

Upon request, OCRM's evaluation of the projects, including scores and comments, will be made available to all applicants after the notification.

APPENDIX B

INTERSTATE COASTAL MANAGEMENT STUDIES

Pursuant to section 309 of the Coastal Zone Management Act, the National Coastal Research Institute (NCRI) has funded two interstate coastal management projects that cover the states of California, Oregon, Washington, and Alaska. Members of the project team include Richard Hildreth of the University of Oregon [(503) 686-3866], Marc Hershman of the University of Washington [(206) 545-2469), Biliana Cicin-Sain of the University of California Santa Barbara [(805) 961-8393, and Jon Isaacs of Jon Isaacs and Associates in Anchorage, Alaska [(907) 274-9719].

Pacific Coast Regional Interstate Coastal Management: California, Oregon, Washington and Alaska

The first study focuses on nearshore waters and coastal lands, and is expected to develop a set of priorities for interstate coastal management for the four state region. The objectives are to look at coastal management issues that the four states have in common, improve communication and the flow of information, share management techniques, and promote collaboration on developing research programs and changes to legislation. The study will 1) identify priority issues and specific research needs for regional coastal management projects, including providing direction to 309 Grant Funding, and 2) develop a long-range plan which provides a decision-making framework for implementing these projects. ***Once the plan is complete, future Pacific Coast 309 projects will have to be consistent with the plan in order to be funded. Therefore your responses to this questionnaire and participation in other stages of this project will significantly affect 309 project funding decisions.*** An in-state workshop for agencies and organizations participating in coastal management will be held in each state, followed by a regional workshop to discuss interstate priorities.

Improving State and Federal Ocean Governance Capabilities in the Territorial Sea and EEZ off the Pacific Coast States

The goal of the second study is to identify what is being and can be done at the state level to build state capacity for ocean governance in cooperation with the federal government. It addresses activities that are likely to take place in the 200-mile Exclusive Economic Zone (EEZ) and territorial sea (recently expanded to 12 miles). Four tasks will be accomplished:

- summarize what is known about activities and resource potential in the Territorial Sea and EEZ off the Pacific Coast States;
- describe, for each of the four states, what is being done institutionally to address this potential;
- describe the state level of capacity to participate in ocean management by examining government policy programs, legislation, and expertise; and assess communication, coordination, and decision making mechanisms between state and federal agencies; and
- use the experience of the four Pacific Coast states as a basis for offering suggestions for regional mechanisms to enhance the capacity of the states for effective EEZ planning.

HOW THE SURVEY WILL BE USED

Both projects call for information gathered from selected representatives of agencies and organizations within each of the four states as part of these studies. The intent is to use this survey to consolidate information collection for the two projects, and to use the results to prepare for the in-state and regional workshops. Information to be collected includes:

- what is known about activities and resource potential in the coastal areas and territorial waters/EEZ off of the four Pacific coast states;
- what is being done institutionally to address this potential;
- an assessment of each individual state's existing and potential ability to participate in coastal and ocean management by examination of government policy programs, legislation, and expertise;
- an assessment of communication, coordination, and decision making mechanisms between state and federal agencies; and
- suggestions for enhancing the capacity of the states for effective interstate coastal management and EEZ planning.

The use of a standard format will help ensure a uniform approach to data gathering in the four states and provide results that will allow interstate comparisons. The information gathered from the surveys will be used in 1) designing and holding workshops and 2) providing information to be incorporated in study findings.

SURVEY INSTRUCTIONS

We are sending you this survey form to help obtain information in the following areas:

- your organization's involvement in resource development and management activities in coastal and ocean waters
- your organization's statutory and/or regulatory and management program responsibilities in coastal and ocean management
- identification and ranking of coastal and ocean management issues
- your organization's research, information dissemination, and computer/electronic communication capabilities

The information obtained will also be used to help set the agendas for the instate and regional workshops.

We know that this is a lengthy questionnaire; your assistance will contribute to a better understanding of coastal and ocean management needs. Please review this form to determine which parts are pertinent to your agency or organization, gather available information, fill out the appropriate sections, and return the completed survey, using the enclosed self-addressed envelope, by June 12th.

If you have any questions, please contact the investigator for your state listed on Page 1 of this packet.

ADMINISTRATIVE INFORMATION

(please fill in the lines in this block)

Name : _____

Title/ _____

Agency or Organization: _____

Division, Department, or Office: _____

Address/Phone # _____

_____

Date _____

Section 1 - Responsibilities and Interests in State and Federal Waters

A. State Waters (coastal bays, sounds, estuaries and ocean waters and ocean waters within the three mile limit)

1. Please check the following boxes to summarize activities of your agency or organization that apply to to the following activities in state waters.

	regulatory programs	policy and planning programs	research programs	# of staff participating
oil and gas				
offshore mining				
fisheries management				
fish and wildlife management				
waste disposal and water quality				
ports and marine transportation				
recreation				
coastal hazards and emergency services				
other *(please list)*				
_____				
_____				

2. What enabling legislation provides for your agency's or organization's involvement in activities in state waters? (*please fill in the blanks, or provide a reference or an attachment)*

a. statutory citation(s)_____

b. title(s) _____

_____

c.summary/intent _____

_____

3. Which of your programs apply to activities in state waters:

a. regulatory programs_____

b. policy development
and planning programs_____

c. research programs_____

d. resource use/development_____

e. resource conservation_____

4. What state and federal agencies do you interact or coordinate with on these programs:

a. regulatory programs_____

b. policy development
and planning programs_____

c. research _____

d. resource use/development _____

e. resource conservation

5. What new programs has your agency or organization implemented or participated in for activities in state waters during the past year, and who has funded those programs?

Program	program type (regulatory, policy/planning, research resource development)	Funding source

6. In the last five years, rank the following activities in which your agency or organization has been most actively involved for state waters (*1 being the most active, 7 the least active)*

a. ( ) policy development and planning programs
b. ( ) permitting and decision making (regulatory programs)
c. ( ) research and resource management programs
d. ( ) coordination with the federal government
e. ( ) marine conservation practices
f. ( ) economic development activities
g. ( ) conflict resolution

7. Please estimate the % of federal funding for your state waters programs:

a. regulatory programs_____

b. policy development
and planning programs_____

c. research programs_____

d. resource development _____

e. resource conservation_____

8. What specific steps has your agency or organization taken to interact with federal agencies on state waters issues? Are these relations generally cooperative and ongoing, or reactive to specific events and adverserial?

_____
_____
_____
_____

9. What mechanisms are available to your agency or organization for negotiating with state and federal agencies or resource users in state waters:

_____
_____
_____
_____

B. Federal Waters (territorial sea outside three miles, Exclusive Economic Zone)

10. Please check the following boxes to summarize activities of your agency or organization that apply to the following activities in ocean waters outside of state waters:

	regulatory programs	policy and planning programs	research programs	# of Staff participating
oil and gas				
offshore mining				
fisheries management				
fish and wildlife management				
waste disposal and water quality				
ports and marine transportation				
recreation				
coastal hazards and emergency services				
other *(please list)*				
_____				
_____				

11. What enabling legislation provides for your involvement in activities in ocean waters outside of state waters? (*please fill in the blanks, or provide a reference or an attachment)*

a. statutory citation _____

b. title(s) _____

_____

c.summary/intent _____

_____

12. Which of your programs apply to activities in ocean waters outside of state waters:

a. regulatory programs _____

b. policy development and planning programs _____

c. research programs _____

d. resource use/development _____

e. resource conservation _____

13. What state and federal agencies do you interact or coordinate with on these programs:

a. regulatory programs_____

b. policy development
and planning programs_____

c. research programs_____

d. resource use/development _____

e. resource conservation_____

14. What new programs has your agency or organization implemented or participated in during the last year for activities in ocean waters, and who has funded those programs?

Program	program type (regulatory, policy/planning, research resource development)	Funding source

15. In the last five years, rank the following activities in which agency your organization has been most actively involved in for ocean waters (*1 being the most active, 7 the least active*)

a. ( ) policy development and planning programs
b. ( ) permitting and decision making (regulatory programs)
c. ( ) research and resource management programs
d. ( ) coordination with the federal government
e. ( ) marine conservation practices
f. ( ) economic development activities
g. ( ) conflict resolution

16. Please estimate the % of federal funding for your ocean waters programs:

a. regulatory programs_____

b. policy development
and planning programs_____

c. research programs_____

d. resource use/development _____

e. resource conservation_____

17. What specific steps has your agency or organization taken to interact with federal agencies on ocean management issues? Are these relations generally cooperative and ongoing, or reactive to specific events and adverserial?

_____

_____

_____

18. What mechanisms are available to your agency or organization for negotiating with state and federal agencies or users of ocean resources:

_____

_____

19 a. Please identify what gaps exist (if any) in <u>your state's</u> ability to more fully participate in and benefit from the development of ocean resources in the Exclusive Economic Zone or territorial sea:

_____

_____

_____

19 b. In your view, what is needed to overcome gaps in <u>your state's</u> ability to more fully participate in and benefit from the development of ocean resources in the waters of the Exclusive Economic Zone or territorial sea:

_____

_____

_____

C. Ocean Policy and Management (Ocean Affairs) Capacity

20. Are there key leaders in your state that have made progress in ocean affairs possible (please check):

a. ( ) executive branch of government
b. ( ) legislative ranch of government
c. ( ) other organizations (*please list*)_____

_____

Please provide the names and title of individuals who have been particularly significant

d. _____

_____

_____

21. List any catalytic events in the coastal environment that have been a major factor in developing ocean management programs or are likely to result in development of new programs:

_____

_____

_____

22. To participate in ocean affairs, has your state:

a. ( ) created new organizations *(provide examples)* _____

_____

b. ( ) adapted old ones *(provide examples)* _____

_____

c. **Which seems to work best:** _____

23. Who has funded new initiatives in ocean affairs in your state *(please list source of funding)*?

a. ( ) state _____
b. ( ) federal _____
c. ( ) other (*please list*) _____

For what purposes has the money been used:

d. ( ) regulatory programs
e. ( ) policy development and planning programs
f. ( ) research programs
g. ( ) resource development
h. ( ) resource conservation

24. Has your state developed new ocean related policies in recent years?

a. ( ) yes
b. ( ) no

Are such efforts now underway?

c. ( ) yes
d. ( ) no

Do you believe these policies wil be:

e. ( ) integrated ocean management (eg. multiple use)
f. ( ) resource specific

25. Does your state have adequate numbers of marine professionals and sufficient information to participate in ocean affairs?

marine professionals

a. ( ) yes
b. ( ) no

sufficient information

c. ( ) yes
d. ( ) no

If not, in what areas are capabilities are urgently needed?

e. ( ) regulatory programs
f. ( ) policy development and planning programs
g. ( ) research programs
h. ( ) resource management
i. ( ) economic development
j. ( ) information centers and clearinghouses
k. ( ) other *(please list)* _____

_____

26. What mechanisms are available to local government to participate in ocean management activities?

_____
_____
_____
_____
_____

Section 2 - Identifying Priorities, Issues and Needs

A. State Waters

27. To help us determine issues for In-state and interstate workshops, please rank the following issues <u>in state waters</u> (*1 is the highest priority*):

a. ( ) coastal wetlands
b. ( ) shoreline protection
c. ( ) promoting public access with due regard for private property rights
d. ( ) aquaculture facility siting
e. ( ) integrating new approaches to estuary planning and management into coastal zone management
f. ( ) state and regional approaches to coastal water quality
g. ( ) coastal management implications of offshore development in state and federal waters
h. ( ) the role of coastal management in implementing MARPOL V requirements
i. ( ) fisheries management
j. ( ) oil spill contingency plans, response actions , and petroleum product and hazardous substance transportation
k. ( ) other (*please list*): _____
( ) other (*please list*): _____
( ) other (*please list*): _____

28. What are your priority needs in responding to issues listed above, or related issues? (*please indicate the specific subject they address eg., "research: effects of dispersants on salmon fry"*)

a. additional legislation_____
_____

b. programs _____
_____

c. research _____
_____

d. funding levels and sources_____
_____

e. staffing (list by program area)_____
_____

f. coordination with state and federal agencies_____
_____

B. Federal/Ocean Waters

29. To help us determine issues for in-state and interstate workshops, please rank your priorities on the following activities and issues in federal/EEZ waters (*1 is the highest priority*):

a. ( ) coastal management implications of offshore development in federal waters
b. ( ) the role of coastal management in implementing MARPOL V requirements
c. ( ) fisheries management
d. ( ) oil spill contingency plans, response actions , and petroleum product and hazardous substance transportation
e. ( ) the use of task forces, compacts, memoranda of understanding, and other forms of federal/state intergovernmental agreements
f. ( ) other (please list: _____
( ) other (please list: _____
( ) other (please list: _____

30. What are your priority needs to respond to resource development issues and conflicts? (*please indicate the general needs by issue or subject they address eg. research: effects of dispersants on salmon fry*)

a.additional legislation_____
_____

b. programs _____
_____

c. research _____
_____

d. funding levels and sources_____
_____

e. staffing (list by program area)_____
_____

f. coordination with state and federal agencies _____
_____

31. List any catalytic events in the ocean environment that have been a major factor in developing ocean management programs or are likely to result in development of new programs:

_____
_____

32. Please provide some guidance on other matters that could be included on the agendas for the in-state and inter-state workshops associated with these 309 projects:

Interstate Coastal Management

a. legislation _____

b. programs _____

c. research _____

d. funding _____

e. coordination _____

f. other _____

EEZ/territorial sea

g. legislation _____

h. programs _____

i. research _____

j. funding _____

k. coordination _____

l. other _____

Section 3 - Regional Coordination

33. In carrying out the work of your agency or organization, about how often do you communicate with personnel in <u>similar</u> agencies/organizations in other Pacific Coast states (*please note that "similar" means entities dealing with the same resource - eg. fisheries - or issues - eg. coastal management*)

a. ( ) once a week or more
b. ( ) once a month
c. ( ) once every three months
d. ( ) once every six months
e. ( ) once a year
f. ( ) only rarely (once every two to three years)
g. ( ) never

34. What form do these contacts/communication generally take?

a. ( ) mainly on the telephone
b. ( ) meetings
c. ( ) special conferences, workshops
d. ( ) annual meetings of regional or professional organizations
e. ( ) other _____
_____

35. In carrying out the work of your agency or organization, about how often do you communicate with personnel in <u>different</u> agencies/groups in other Pacific Coast states (*please note that "different" means entities dealing with different resources or issues -eg. fisheries agency dealing with a coastal management agency*)

a. ( ) once a week or more
b. ( ) once a month
c. ( ) once every three months
d. ( ) once every six months
e. ( ) once a year
f. ( ) only rarely (once every two to three years)
g. ( ) never

36. What form do these contacts/communication generally take?

a. ( ) mainly on the telephone
b. ( ) meetings
c. ( ) special conferences, workshops
d. ( ) annual meetings of regional or professional organizations
e. ( ) other (*please list*)_____
f. _____

37. Below is a list of some of the existing mechanisms for regional coordination/planning/regulation. Would you please check those in which your agency/organization has partcipated?

a. ( ) Western Governors Conference
b. ( ) Western Legislative Conference
c. ( ) Western Attorney Generals Association
d. ( ) National Coastal Resources Institute
e. ( ) Pacific and North Pacific Regional Fisheries Management Councils
f. ( ) Pacific Marine Fisheries Commission
g. ( ) Pacific Fisheries Legislative Task Force
h. ( ) Western Association of State Submerged Lands Managers
i. ( ) Northeast Pacific Regional Consultative Group
j. ( ) other (*please list*)_____

_____

38. Some have suggested that it would be useful for the Pacific Coast states to consider creating some type of regional mechanism to better coordinate the state's actions on shared and common problems related to the management of ocean and coastal resources. Do you think that this is:

a. ( ) a good idea *(please list suggested mechanism)*_____
b. ( ) a bad idea
c. ( ) you are indifferent

39. If you answered (a) above, what major functions need to be performed by such a regional mechanism? (*please rank the top three*):

a. ( ) anticipate the regional implications of expanded offshore activities in the Exclusive Economic Zone
b. ( ) share experience on common/similar issues (such as offshore oil)
c. ( ) address shared problems among two or more states (eg. pollution issues)
d. ( ) enhance the capacity of each state for ocean and coastal management through information exchange with other states
e. ( ) develop coordinated/standardized state policies that would encourage private investment/economic development by industry
f. ( ) coordinate and enhance the state's position vis-a-vis the federal government through a collective approach
g. ( ) other (*please list*)_____

_____

Section 4 - Data Management And Communication Capability

[Note: the purpose of this section is to assess the in-state and interstate capability to share information on coastal and ocean management issues]

A. Data Management Capabilities

40. What types of coastal or ocean research/management data programs does your agency have or participate in?

a. information collected and stored:

b. hardware and software systems used for data management and dissemination:

c. with whom do you coordinate or receive input from on data management activities:

state agencies

federal agencies

interstate efforts

private industry

information networks

B. Communication And Coordination Capability

41. Please list/describe specific programs for communication or coordination on coastal and ocean management:

a. intra-agency

b. inter-agency

c. federal-state coordination

42. Please list specific mechanisms utilized in ocean and coastal management communication and coordination

a. hardware (computers, electronic mail etc.)

b. publications

c. workshops and conferences

Conclusion

On behalf of all four investigators, NCRI, and the 309 Program coordinators in the four states, we thank you for participating in this survey. Please mail the completed questionnaire in the enclosed self-addressed envelope, or if it has been misplaced, mail it to:

Jon Isaacs
Jon Isaacs and Associates
2418 Forest Park Drive
Anchorage, Alaska 99517

APPENDIX C

309 PROJECT INTERSTATE COASTAL MANAGEMENT WORKSHOP
AUGUST 1, 1989: ANCHORAGE, ALASKA
LIST OF PARTICIPANTS

NAME	AGENCY
Jan Caulfield	Division of Governmental Coordination
Sarah Hunt	Division of Governmental Coordination
Joaqlin Estes	Division of Governmental Coordination
Kurt Fredrickson	Division of Governmental Coordination
Kerry Howard	Department of Environmental Conservation
Jim Powell	Department of Natuaral Resources
Deborah Greenberg	Department of Fish and Game
Christy Miller	Department of Community and Regional Affairs
Maureen McCrae	Minerals Management Service
Roger Mercer	NOAA, National Marine Fisheries Service
Hank Pennington	University of Alaska, Marine Advisory Service
Darcy Lockhart-Richards	Aleutians West Coastal Resource Service Area

ALASKA INSTATE COASTAL ZONE MANAGEMENT WORKSHOP

AUGUST 1, 1989
ANCHORAGE AND JUNEAU, ALASKA
by Jonathan Isaacs, co-investigator

INTRODUCTION

This report summarizes the discussions at an Alaska in-state workshop pursuant to the "Northeast Pacific Ocean Regional Interstate Coastal Zone Management Plan". Continuing state and federal agency responsibilities affected both scheduling and attendance at the workshop. The workshop was held in Anchorage, and in Juneau via teleconference. The workshop announcement, agenda, and list of participants is attached as Attachments A, B, and C. This report will first present some general comments from workshop participants on the Section 309 program and general issues and needs, followed by priorities and needs discussed by specific issues. Most of the participants found that the workshop was worthwhile in bringing people together to discuss current management, research, and information sharing needs, even beyond the focus of the 309 program.

This report lists all of the needs and issues identified by participants. Some of the issues and needs discussed below may not fit the regional requirements of the 309 program; however, they are included in this summary for the benefit of workshop participants. They may also be useful in setting state coastal management priorities beyond the 309 program. Participants will review the list presented in this report and make suggestions regarding Alaskan priorities for the regional workshop

GENERAL ISSUES AND NEEDS

Several general issues and needs resurfaced throughout the workshop. These are described below:

The 309 Grant Process

The first issue raised was the length and complexity of the 309 grant process itself. A potential period of 18 months from call for pre-proposals to project award and startup makes it difficult to meet short-term coastal management needs, which are often the

most pressing ones. State and federal managers aren't always thinking 18 months ahead in programming projects. The time required by the numerous steps in the pre-proposal and formal proposal process also constrain state and federal agencies in Alaska from putting together well-thought out or competitive proposals. Other commitments make it difficult for them to spend the time on a successful proposal effort. The type of projects that have been funded by the 309 program have not been applicable to current coastal management issues in Alaska, and integration of 309 projects into agency operations has been non-existent. As a result of these factors, there has been little attention paid to the 309 program by Alaskan agencies.

However, the agencies that attended the workshop feel that the process undertaken through this project, identifying projects in advance and assigning priorities to them, will definitely help in identifying 309 projects that are more useful to the agencies. This knowledge will also assist agencies in preparing proposals that are likely to be more successful.

Information Sharing With Other States

A second recurring theme was information sharing with other states. Alaska's geographic separation from the rest of the west coast feeds a sense of isolation, particularly with regard to coastal management activities by the other Pacific states. Of particular interest were regulatory and management approaches to Alaskan issues that may have already been addressed by other states. Several attendees felt that time could be saved from "re-inventing the wheel" on problems where other states offer experience or solutions. They also felt that all states could benefit from better information sharing. The concept of a regional data center or information inventory was mentioned; problems with keeping a data center up to date are recognized.

Integrating Regulatory Requirements with Current Developments in Available Technology or Research

Workshop participants indicated that a common agency and permitting problem is the gap between regulatory standards (eg. for acceptable levels of pollutants or requirements for use of technology) and the best technology or research information currently available. Applications to mining and water quality were specifically mentioned.

Interstate Agreements and Staff Exchanges

Staffing demands created by the Exxon Valdez oil spill have required that federal agencies in particular bring in personnel from their offices in other parts of the country. The experience and different perspectives that these personnel bring with them have been educational to Alaskan staff. The concept of some form of short term personnel exchange between state agencies or within different offices of federal agencies is worth discussing on a regional basis to determine potential value and level of interest. a related concept is the creation of interstate, interagency agreements covering emergency management and response. In addition to responding to emergency events, it could also include personnel, training, and technical information exchange.

SPECIFIC ISSUES

Coastal Water Quality and Marine Debris

1. Non-point Source Water Pollution - Needs include developing a strategy and means of implementing a program to control non-point source water pollution. Urban and storm runoff, mining and timer operations were included in this category. Information sharing with other states on programs developed, techniques utilized, and how they've worked is desirable. A specific project idea mentioned is the use of remote sensing to identify and monitor non-point source pollution problems and as an enforcement tool when regulations are in place.

2. In-stream Flow Reservations - Needs included developing a state program for regulating instream flow reservations, given increasing requests for water withdrawals. Information sharing with other states on programs developed, techniques utilized, and how they've worked is desirable.

3. Harbor and Marine Water Quality - problem areas include discharges by seafood processing facilities, bilge pump and other vessel discharges, and potential discharges from aquaculture operations. Needs include information on potential habitat damage, regulatory and technological options available, and public information problems.

4. Municipal Response to MARPOL V Requirements - Alaskan municipalities are having a problem responding to MARPOL V requirements, particularly with disposal and recycling capabilities and dealing with foreign vessel garbage which must be quarantined. Solutions and recommendations from other communities

are of interest, as is developing a regional response to MARPOL V requirements. There is no coordinated federal-state response to meeting MARPOL, and no one is currently providing significant technical assistance to ports and communities.

5. Recycling Marine Debris and Garbage - recycling opportunities exist for marine garbage, particularly fishing nets, which can be separated and sent back to Asia for reuse or potentially used in local erosion control projects. Development of community-based technologies or a regional center are potential projects.

6. Beach Clean-up - as with marine debris, lack of technical assistance or repositories for beach garbage collected are a problem at the community level.

Coastal Wetlands and Estuaries

1. No Net Loss Strategy - the four Pacific states could work together to establish a broad strategy and approach to respond to the federal No Net Loss policy for wetlands. It should be recognized that Alaska's status with regard to wetlands is most likely different from the other states.

2. Establish a Statewide Wetlands Taskforce - fund a facilitator to establish a statewide wetlands taskforce representing federal and state agencies, scientists, industry and communities to develop a statewide plan and implementation recommendations for identification and management of wetlands. The methodology and process developed may be of interest to other states.

3. Preparation of Advanced Identification of Wetlands Regulations - Alaskan communities are among the first to submit wetlands management programs for advanced identification of wetlands to the Corps of Engineers. The COE has provided little formal guidance on this issue, and development of regulations or guidelines may be of regional interest.

4. Mitigation and Restoration of Wetlands - inventory wetland mitigation and restoration techniques, and evaluate them as to whether they work. Information sharing on the experience of other states in wetlands mitigation, restoration, or creation is also desirable.

5. State Assumption of Section 404 Program - State and/or municipal assumption of COE Section 404 Program responsibilities are being contemplated in Alaska. A regional evaluation of benefits and constraints associated with assumption of the 404 program may be of interest.

Mariculture and Aquaculture (including finfish farms)

1. Aquaculture/mariculture Siting Criteria - establish criteria for siting aquaculture and mariculture projects, such as physical setting (water quality, depth, currents), gear and navigation conflicts, upland use considerations (particularly with regard to water quality), and water quality (discharges) and aesthetic considerations resulting from project operation.

2. Permitting and Regulatory Requirements - evaluate permitting and regulatory requirements in other states or countries (Japan, Canada, Europe) to determine what has and hasn't worked; then develop a set of permitting and regulatory requirements that could be used for the region.

3. Comparative Studies - compare a prospective site in one or more of the states with operational sites in other states or countries.

Offshore Oil and Gas Development and Product Transportation

1. Monitoring and Compliance Programs - develop a federal-state strategy for 1) offshore oil and gas activity monitoring and compliance with federal and state regulations, and 2) petroleum product transportation monitoring and compliance with federal and state regulations

2. Clean-up of Abandoned Leases - develop regulations, procedures and assignment of responsibility for cleaning up abandoned oil and gas leases.

3. Territorial Sea Jurisdiction - develop a region-wide strategy towards state involvement in the management of oil and gas resources within the territorial sea.

4. Minimum Standards for Lease Sales - development of minimum standards for the west coastal region for state and federal oil and gas lease sales. These

would include design standards, contingency planning and response capability, risk assessment (including training and drills), cost-benefit analysis, and state and community involvement in planning and decision making.

5. Minimum Standards for Transportation of Oil - development of minimum standards for the west coastal region for the transportation of petroleum products. These would include design standards, contingency planning and response capability (including training and drills), performance bonds, monitoring and enforcement, and state and community involvement in planning and decision making.

6. Inventory of West Coast Spill Response Capacity - assess the spill response capacity of the west coast through an inventory of response organizations, equipment, personnel, and contingency/response plans.

7. Assessment of Oil Spill Technology - compile an inventory of available oil spill technology, particularly from other production areas such as the North Sea, and compare it to what is currently in use or on hand in the region, with recommendations for bringing regional response up to best available technology.

8. Community Oil Spill Response Plan Model - develop a model for a community oil spill response plan, including equipment needs, training, funding and user fees.

9. Assessment of Extent of General Oil Pollution - Assess the regional level of general marine oil pollution and implications for changes in vessel design (eg. ballast water systems and double bottoms), regulatory systems, and monitoring and enforcement.

10. Evaluation of Marine Traffic Systems - evaluate regional marine traffic management systems and what is technologically available, with recommendations for voluntary and non-voluntary systems.

11. Other Hazardous Materials - there are other hazardous materials in the marine environment, both transported as a commodity or present as a standard operating component on vessels (eg. ammonia, chlorine). The nature and general amounts of these materials should be assessed, along with the potential threat they impose. Appropriate guidelines for what to expect with spills and how to respond could be developed.

Minerals Development

1. Use of remote sensing - A specific project idea mentioned is the use of remote sensing to identify and monitor mining non-point source pollution problems and as an enforcement tool when regulations are in place. A pilot project could be designed to monitor one or more specific offshore or floodplain mining projects with remote sensing over the course of a year to evaluate patterns of sediment discharge.

2. Technology and Regulatory Requirements - regulations for testing and maintaining water quality for mining projects need to be revised to reflect current available technology and research on acceptable water quality standards. This is a concern with offshore gold mining and mercury levels, and is potentially a concern with the heap leach cyanide process for recovering gold. This is also an interest in finding out what other states have in place in terms of regulations, standards, and technology requirements.

3. Intertidal Mining Jurisdiction - Alaskan experience with intertidal beach mining proposals has indicated confusion over federal permits required and agency jurisdiction. A regional federal-state task force should clarify jurisdiction and permits required.

4. Water Quality Pilot Project - investigate the use of hydrocyclones, used to concentrate recoverable minerals, to treat wash/waste waters to remove sediment or other undesirable discharge.

5. Mitigation and Restoration of Mining Sites- inventory mining mitigation and restoration techniques, and evaluate them as to whether they work. Information sharing on the experience of other states in mined lands mitigation and reclamation is also desirable.

Shore Protection, Coastal Hazards, and Placement of Structures

1. Erosion Zone Management - Interim federal regulations are now available on Erosion Zone Management. There needs to be a regional interface with developing national standards and integrating them into coastal management programs.

2. Coastal Barriers Resources Act - The federal Coastal Barriers Resources Act appears to be oriented towards southeast U.S. barrier island systems. There is a need to develop a west coast regional approach to implementing and complying with the Coastal Barriers Resources Act, including appropriate classification of coastal barrier island systems and development of reasonable standards.

3. Flood Hazard Areas - How other state coastal management programs address flood hazard areas and requirements is of interest to Alaska, including use of the state or local entity to condemn a structure for the purposes of moving it.

Fisheries and Coastal Management

1. Coastal Consistency of Fisheries Programs - One participant felt that Alaskan Coastal Management Program policies regarding fisheries and fisheries management programs need to be upgraded. There is an interest to find out how coastal management programs of other states address approval and consistency of fisheries management programs.

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for

WORKSHOP ON

DEFINING PRIORITY COASTAL AND OCEAN MANAGEMENT ISSUES IN CALIFORNIA AND IN THE PACIFIC REGION

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AGENDA

WORKSHOP ON

DEFINING PRIORITY COASTAL AND OCEAN MANAGEMENT ISSUES IN

CALIFORNIA AND IN THE PACIFIC COAST REGION

Monday, August 28, 1989

Auditorium, State Resources Building
1416 Ninth Street
Sacramento, California

9:00 A.M.	WELCOME AND INTRODUCTION —Purposes and conduct of workshop —Background— Two Pacific Coast studies funded by NCRI with NOAA CZM 309 funds —Major questions to be addressed at the meeting —Explanation of procedures for concurrent workshops on five substantive topics
10:00 to 2:00	CONCURRENT WORKSHOPS (5 topics— see attached list)
12:00 to 1:00	PICK UP LUNCH (at your convenience and continue workshop discussions)
2:15 to 4:30	REPORTS OF CONCURRENT WORKSHOPS by co-facilitators (25 minutes per group— 15 minutes [maximum] for presentation by one or both co-facilitators— 10 minutes for general discussion)
4:30 to 5:00	WRAP-UP— COMMENTS ON ALL TOPICS

GUIDELINES FOR CONCURRENT WORKSHOPS

QUESTIONS TO BE ADDRESSED

1. What is the nature of the "problem area" (e.g., coastal water quality) being addressed? (Feel free to redefine the "problem area" if you feel it has not been framed properly.)

2. What are the specific issues that are involved?

3. Are the issues related more to the lack of good information on the problem or to such factors as value conflicts between groups or agencies holding different perspectives, gaps in legal authority, etc.?

4. To what extent, if any, are the following important in the problem area being addressed:

--problems in communications/relations among state agencies?

--problems in communications/relations between the legislative and executive branches of state government?

--problems in state/local communications/relations?

--problems in state/federal communications/relations?

--differing perceptions as to the urgency of the problem?

--lack of resources to more fully address the problem/need?

5. To what extent, if any, is the problem area in question also important in other Pacific Coast states?

6. What needs to be done to address the problem area?

7. More specifically, what institutional steps need to be taken to address the problem area?

--within and among state agencies

--between state and federal governments

--between state and local governnments

--among the various Pacific Coast states

8. What, if anything, ought to be done on a regional Pacific Coast level?

--would some kind of reginal communication/coordination mechanism be useful?

--If so, what form should it take?

9. What are the priority research needs in this area? (with approximate budget figures and possible sources of funding [if possible])

--for the immediate term (1 to 2 years)

--for the medium term (3 to 5 years)

--for the long-term (6 to 10 years)

SUGGESTIONS FOR RUNNING THE CONCURRENT WORKSHOPS

Role of the co-facilitators is to insure that:

--all major questions in the question guide are addressed

--to involve other participants in the discussion

--to insure that all relevant viewpoints are considered

Recorder: Co-facilitators should appoint a participant to record the discussions at the outset of the workshop meeting

Presentations by 1 or 2 co-facilitators to the entire meeting should reflect both any consensus reached in the discussions as well as major differences in opinion which become apparent in the workshop discussions.

Resource materials for each workshop

--report from Washington in-state meeting
--report from Alaska in-state meeting
--report from Oregon in-state meeting
--draft of regional coastal zone management plan (by Hildreth)
--guidelines for 309 projects
--list of past 309 projects

Resource individuals

--Jody Loeffler, 309 coordinator, California Coastal Commission
--Gordon Snow, Resources Agency
--Masi Okasaki, NOAA/OCRM
--Biliana Cicin-Sain, Ocean and Coastal Policy Center, NCRI project leader
--Jennifer Scholl, Ocean and Coastal Policy Center, logistics

WORKSHOP NOTES

for

WORKSHOP ON

DEFINING PRIORITY COASTAL AND OCEAN
MANAGEMENT IN CALIFORNIA AND
IN THE PACIFIC REGION

Monday August 28, 1989
Auditorium, State Resources Agency
Sacramento, California

WORKSHOP 1: Coastal water quality (nearshore and ocean waters) relationship between coastal water quality and CZM, oil spill plans, implementing MARPOL ANNEX V, etc.).

Presented by Edward Anton - Water Resources Control Board
Notetaker: Karen Taberski - Department of Health Services

Participants:

Mary Bergen - State Lands Commission
Janet Hashimoto - Environmental Protection Agency
Peter Douglas - California Coastal Commission
Mike Martin - Department of Fish and Game
Marianne Yamaguchi - Southern California Association of Governments

What is the nature of the problem?

1. To protect water uses for beneficial needs from toxics and pathogens:
   a. Protecting aquatic life
   b. Protecting human health

SPECIFIC ISSUES

1. Bioaccumulation of toxics - moving up the food chain (PCBs, dioxins - we do not know the extent of the problem)

2. In-place toxics - (sediment quality) What is the acceptable level of sediment pollution?

3. Sediment Quality (Sediment Affect Threshold)
   a. Prevention
   b. What levels cause a toxic effect?
   c. Who is responsible for clean-up?

4. Pathogen indicators and the relationship to human health (ie., bathing in pathogenic water)

5. Urban runoff - a significant source of ocean pollution. How to control this...the need for education

6. Pesticides (herbacides, insecticides), agricultural runoff

7. Turbidity and sedimentation due to:
   a. erosion
   b. drilling muds and cutting

8. Water quality assessment (monitoring)
   a. How do we best measure effects or the potential effects (Regional monitoring?).
   b. Cost effective
   c. Reliable data
   d. How to best make data accessible
   e. How to interpret data

9. Need bioassement to indicate and provide a better understanding of toxic effects other than lethal, (ie., sub-lethal: reproductive, and carcinogenic)

10. Plastics - deal with control mechanisms

11. Evaluate disposal options (land, water, or air)

PROBLEMS

1. There needs to be more effort to communicate between agencies, lawmakers need to coordinate and to be aware of conflicts and to not create gaps within policies (comprehensive without overlap). How do you institutionally implement "regionalism"?

2. Intermediate exchange needs to be addressed: difficulties are competitiveness and different goals

3. California has more of a water quality connection with Mexico than with Oregon or Washington although all three states have common concerns with regards to water quality.

PRIORITY RESEARCH NEEDS

1. Develop oil spill readiness plan for the West Coast

2. Dealing with urban runoff - (storm water systems) - coordinate work with EPA

3. Develop analytical techniques for dioxin that is cost effective

4. More work in die-off rates of indicator organisms and pathogens under different conditions.

5. Develop a method of quantifying Norwalk virus

6. Screening of marine mammal tissue (seal, sea lion) for bioaccumulation.

7. Measure coliplage in storm drains and investigate sources to determine the validity of its use as a human specific indicator

Concluding remarks:

1. There is a lack of knowledge, evidence and in some cases a lack of technology in response to these problems. (This is especially the case in the area of pathogens).

2. There does not seem to be enough coordination between groups involved in water quality issues.

WORKSHOP 2: Implications (onshore and offshore) of development in state and federal waters, e.g., offshore oil, ocean mining, etc.

Presented by Warner Chabot - Central Coast OCS, Regional Studies Program

Notetaker - Tom Wakeman - U.S. Army Corps of Engineers

Participants:

Mary Elaine Dunaway - Minerals Management service
Mary Griggs - State Lands Commission
Jody Loeffler - California Coastal Commission
Phillip Meyer - Meyer Resources, Inc.
Dennis O'Bryant - Department of Conservation
Genevieve Shiroma - Air Resources Board
Lon Spharler - Department of Parks and Recreation
Rob Wilder - Office of Assemblyman Hauser

ISSUES

1. State sovereignity vs Federal vs Regional

2. Interjurisdictional (state/region) Issues
   a. policy formulation
   b. implementation relationships

3. Offshore mining planning

4. Geologic assessment (onshore and offshore)

5. Hazard and Resource Assessment

6. Joint occupancy between governmental agencies

7. Broad government controls of oil spills

8. Impacts of development on natural environment

9. Congressional mandates are not timely and they are sometimes controversial between state and national legislation.

10. Unified approach to energy policy at National level as applied to coastal environment

11. Re-education of state/public players because of the lack of technical continuity.

12. Multi-directional communication/education

13. Inability to presently meet Federal standards by coastal areas; want on/offshore consistency for Federal/State standards

14. Adequacy vs Consistency between State and Federal standards

15. Ability to handle oil spills

16. Centralized database for technology/regulatory and resource issues (compile and assess), GIS system

17. Determination of who (what agencies) has jurisdictional authority an where

18. Communication between legislature and the Federal/State agencies

19. Local governments' authority and assessment of impacts vs Federal/State agency direction/authority

20. Public understanding limited as well as assessibility to technical data from State/Federal agencies (public education deficiency)

21. Respect for the diversity of local environments and peoples' wishes at regional level; emphasis of needs/values of Indians and local governments - the people impacted that live on the coast

22. Equitable spread of risk between impacted groups and user groups (transfer of risk)

23. Increase in costs to proponents vs adequate measures to offset potential risks

24. Develop more sustainable approach for planning - long-term, renewable resources vs nonrenewable

25. Public opinions of scientists/technicians

26. Rigidity in legislative framework (State/Federal/Local)

27. Technical credibility:
    a. different experts
    b. uncertainty of data
    c. institutional and legislative sideboards leading to research

SYNTHESIS OF ISSUES:

I. Process to resolve issues

1. Structure
   a. 41 Air Boards
   b. Centralized agency overview (1 board)

2. Technical Issues

II. Improvement of information exchange between State/Local governments to keep abreast of development through clearinghouse to improvement coordination/planning/policy.

1. West coast topical newsletter on monthly basis to provide update of activities

2. Electronic transfer of information

III. Public Process (Bottom-up Analysis)

1. disaggregation of process and evaluation as well as implementation (State and Federal oversight)

2. issue of control and distribution of resources to public as planning partner

IV. Plan sharing

1. Clearinghouse to reduce duplication

2. Cost-sharing with information

3. Insure feedback from information dissemination by involvong "lay" public to short circuit public disbelief of process/technology

RESEARCH NEEDS

I. Under the constraint of $250,000 budget: Prepare a vehicle fpr disseminating information

1. Communication between:
   a. States
   b. Local, Regional, State, and Federal elected officials
   c. Local, Regional, State, and Federal agencies
   d. Media
   e. Educational Institutions
   f. Interest Groups

2. Newsletter Contents:
   a. Focus on NCRI/CZM topics
   b. Reports
   c. Studies
   d. Hearings
   e. Data bases

3. *Workshops Conduct and training (Information transfer, planning, and decision making)

*(limited by legislative timeframes to develop positions and voice concerns from local publics)

II. Bottom-up planning on general issues:

1. Use Local Coastal Plans (LCPs)?

2. Dealing with broad issues - "Gorda Ridge" vs some future unknown find

3. Programmatic process tougher than specific projects where "players" identifiable

4. High tech. approach and study development - loss of local level input in the past

5. Presentation of the present and future issues to the public to enable informed public involvement

6. Is consistency between local publics and, thereafter, planning process a good goal - does diversity increase success?

IV. Interstate CZM Plan

1. Is such a plan with bottom-up planning

2. What are interstate CZM goals
   a. respect local diversity
   b. encourage information sharing on data, processes, etc.

3. Include industry, fishing, military, etc. needs and requirements

V. OCS Industry Issues

1. Mining

2. Oil drilling

3. Oil transportation

BROAD TOPICS

I. Territorial Sea

1. State sovereignity - legal authority

2. Consistency between state jurisdictions

II. Oil Spills/Transportation

1. Industry capabilities

2. Local, State, and Federal capabilities

3. Private organizations

4. Parks/Resource areas

III. Database

1. GIS

2. Communication, access to data

EXPANSION OF TOPICS

I. State sovereignity - Territorial Sea

1. Federal/State Conflicts/authorities

2. Consistency for users (lease/permits)

3. Litigation (California Territorial Sea)

4. New legislation at the State level for OCS policy

5. Interjurisdictional between states, for example, seabed mining operation

6. Local forums on Ocean Policy

[An aside: II. PLANNING PRINCIPLES/OBJECTIVES

1. Local diversity

2. Local technical/planning participation and initiative

3. Flexible/adaptable process

4. Accountability]

7. Joint hearing on policy formulation

8. Consistent process/management objectives which sets goals at local levels

9. Identify differences between local values and goals regarding ocean priorities

II. Oil Spill/Transportation

1. Define risk and response limitations and capabilities

2. Who has responsibility/authority or who should have the:
   a. authority
   b. responsibility
   c. capability

3. NCRI could make sure that the information learned in Alaska spill is available to other states developing plans through forums, workshops, and bibliographies

III. Data base sharing (see previous discussion on newsletter)

WORKSHOP 3: Coastal wetlands and estuaries, shore protection from hazards, potential sea level rise, etc., and general coastal development.

Presented by Ann Notthoff - Natural Resources Defense Council

Participants:

Ken Collier - Department of Parks and Recreation
Steve Eabry - Morro Bay Task Force
Ron Flick - Department of Boating and Waterways
Tom Knepher - Morro Bay Friends of the Estuary
Bob Radovich - Department of Fish and Game
Bill Travis - Bay Area Conservation and Development Commission

PROBLEM:

1. The dominant problem is the overlapping of agency jurisdictions.

ISSUES:

1. Wetland protection is not an articulated goal

2. The difficulty in defining a wetland, definition differs by agency

3. We must look at the bigger picture in the wetland issue which would extend the boundaries of the coastal zone to include watersheds and upland areas.

IDENTIFIED PROBLEMS:

1. Communication problems - Department of Fish and Game coordinates with the CA Coastal Commission, however, commissioners ignore professional advice.

2. The creation of more citizen groups has pressured elected officials, but as a result there has been the withering away of the environmental professional goal.

3. The Dept. of Fish and Game is listened to but not definitive - COE manual problematic for California agencies

4. There is not enough money to actively protect wetland areas.

5. Relevance to other Pacific Coast states:
   a. In California the intensity of wetland use is very controversial because this property is big $

6. What institutional steps need to be taken to address the problem?:
   a. Extend the coastal zone to include whole watersheds, not just the "wet" areas.
   b. Although existing wetland protection laws are adequate, the effectiveness is lost in the implementation process.
   c. Oftentimes, the factoring of environmental costs in resource use decisions works against resource protection.
   d. Focus on restoration rather than protection

RESEARCH NEEDS AND CONSIDERATIONS:

1. Find a way for better communication

2. Find a way to prevent degradation and restoration will not be necessary

3. Dynamics of each wetland/watershed system are different

4. Consider the benefits from coastal wetlands with regards to commercial fisheries

5. Consider the impact of watershed problems in one state upon another

6. The LCP initially called for watershed protection - why not now?

WORKSHOP 4: Building state capacity in ocean and coastal management. Dealing with multiple use conflicts.

Presented by: Jim Burns - California Coastal Commission

Participants:

Eugenia Laychak - Fisheries Consultant
Rodney R. McInnis - National Marine Fisheries Service
Masi Okasaki - NOAA/OCRM
John Saurenman - Deputy Attorney General
Susan Wade - Environmental Affairs

PROBLEMS:

1. Issues are not being addressed adequately

2. No state leadership in ocean management

3. Overlapping jurisdictions

4. Little coordination and communication between agenices

5. Some statutes are unclear

STATE AND FEDERAL RESPONSE:

State:

1. AB 2000 (Farr) California Resources Management Act

2. SB 1482 (Keene) Oil Spill Response Plan

3. SB 1500 (Hart) Clean Oceans Act

4. Initiative (VandeKamp, McCarthy, and Hayden) would address ocean water quality and oil spill contingency planning

Federal:

1. Reauthorization of the CZMA

2. Reauthorization of the Magnuson Fisheries Act

PROBLEM AREAS:

1. Overlapping and conflicting jurisdictions

2. Clarification of state and federal statutes

3. Identify the states' role/rights

4. Water quality problems

5. Uses conflicts between the following:
   a. Fisheries/Energy Development
   b. Recreation
   c. Waste Disposal
   d. Tourism
   e. Transportation
   f. Aquaculture
   g. etc.

6. Air quality problems

7. Shoreline erosion

8. Future sea level rise

9. Resource management

10. Economic development

* In order to begin to solve these problems the leadership needs to better define the problems to resolve the differing perceptions as to the urgency of the problems.

11. Adequate information is lacking in the following areas:
   a. Status of resources - resource abundance (e.g., modelling fisheries)
   b. Economic modelling
   c. Forecasting
   d. Changing public opinion

12. Decisions are being made without the necessary information - time and cost must be considered.

13. Many decisions are not being made that need to be made.

14. The need for leadership to provide:
   a. coordination
   b. communication
   c. education
   d. representation on regional and interagency bodies
   e. flexibility to respond to changing conditions and values

<u>WHAT INSTITUTIONAL STEPS NEED TO BE TAKEN</u>?:

<u>State</u>

1. State policies need to be articulated in statute and by the Governor

2. A person in the Executive Branch needs to be identified to coordinate the state's effort in ocean management.

3. Staff time needs to be allocated to the task of coordinating the state's effort

4. A work group that provides coordination, suggests policy and program priorities

5. At the state/local level there should be workshops to keep local government informed, provide technical assistance, and hear and respond to local concerns.

Federal

1. There should be a similar federal effort to provide coordination within the states

PRIORITY NEEDS:

1. Develop a California Ocean Plan with; goals, values, and policy statements.

2. Develop a Pacific Coast coordinating group

3. Provide for dispute resolution

4. A management mechanism should be established based on the state plan.

WORKSHOP 5: Strengthening coastal/ocean industries in California and increasing their competitiveness in Pacific Rim affairs (e.g., insuring predictability in public processes, developing standardized state policies and procedures on a regional basis to encourage investment, etc.). This group also discussed issues related to coastal community economic development.

Presented by: Don Lollock - Department of Fish and Game

Participants:

Nat Bingham - PCFFA
Biliana Cicin-Sain - Ocean and Coastal Policy Center
D. Chamberlin - ARCO
Mike McCollum - Department of Fish and Game
Gordon Snow - State Resources Agency

PROBLEM AREAS:

1. Shipping/Commerce

2. Commercial/Sport Fishing and Markets

3. Oil and Gas

4. Mining

PROBLEM AREAS DEFINED AND NEEDS

I. Shipping/Commerce

Planning

1. Dredging and safe spoil disposal - the need for proper navigational channels and facilities - the question of what to do with spoil

a. More information and research needed in this area

b. Need for resolving conflicts early before they become big ticket items

2. Need to keep Port development up to date and competitive; includes, providing facilities for sport/commercial fishing

3. Maintain public trust of commerce, navigation and fisheries.

4. More state overview of Port development - (there is no statewide consistent overview or policy - Chapter 10).

5. Southern California is very dynamic - Northern California is not - Therefor, study the feasibility of using older facilities for fishing needs.

6. Need to avoid duplicative expenditures towards facility development - Balance regional development within the state.

II. Commercial/Sport Fishing

Planning

1. Facilities should be provided in Port and Marina development for both sport and commercial fishing

2. Preserve the local way of life for Californians whose income is dependent upon small family oriented fishing businesses - try not to destroy the small fisherman by overdeveloping large fishing companies.

3. Resolve Oil/Gas conflicts - do not promote the buying out of fisheries, instead, replace and develop new gear, etc.

4. Develop new fishing industries, (ie., salmon and sea urchin trade to Japan).

5. Assure constant access to fishing resources

6. Assure renewability through proper management and habitat protection.

7. Investigate and seek resolution of any resources problems (ie., High Seas - gill netting issue, other foreign fishing - U.S. State Department jurisdiction).

8. Problem of pollution, toxics and contamination

9. Stress the future of a regional commercial fishing industry

III. Tourism

1. Fishing facilities can be attractive if they are clean, safe and accomondating - Tourism industry and the state could promote fishing.

2. Development can be both negative and positive for tourism.

IV. Oil and Gas

1. Oil and gas developmet has a place, but there needs to be an emphasis on energy conservation efforts.

2. Resolve conflicts with other uses

3. Avoid buy out of fisheries, develop new or replacement gear

4. Develop Oil Spill Response Plan

Needs:

a. better equipment
b. better plans
c. increased training especially on the high seas
d. coordination within jurisdictions
   MMS - below surface
   NMFS - above the surface
   EPA - water quality
   State programs

V. Mining (see oil and gas)

CONCLUSION

1. Need to be careful about unneccessary or overregulation, because each regulation was established to stop a conflict there must be constant reinterpretation as needs change.

2. Resolve conflicts early

3. Need to educate future generations about the environment and its protection

4. Coastal needs are not static but evolving for the various resources and activities.

5. Need to maintain a strong sport and commercial fishing industry - supported by facilities, with resource management, with a pollution free environment, with clean fish and habitats, in order to assure full renewability of living marine resources.

6. Good planning, early resolution of issues, meaningful committments to avoid, mitigate, or otherwiase offset impacts should result in more certainty and should facilitate the issuance of permits for eligible projects.

7. A standing non-regulatory Task Force or Clearinghouse of government and private concerns is needed to exchange concerns.

8. Take care of toxics and contamination

** If these suggestions are applied then tourism will benefit from the successes of other ocean/coastal activities.

UNIVERSITY OF OREGON

DRAFT FOR COMMENT

SECTION 309 PROJECT "Northeast Pacific Ocean Regional Interstate Coastal Zone Management Plan"

Summary of Oregon Interstate Coastal Zone Management Workshop, May 10, 1989, Salem, Oregon

by Richard Hildreth, Principal Investigator

INTRODUCTION

This report summarizes the discussions at a workshop held pursuant to the above 309 project on May 10, 1989. The workshop announcement, agenda, and participants list are attached as Exhibits A, B, and C to this report. Also attached as background information is a list of 309 projects funded in the Northeast Pacific region from 1985 through 1988 (Exhibit D). Additional projects have been proposed and funded during 1989. The purpose of this project and workshop are to develop near-term and longer term priorities for 309 funding in the region. The remainder of this report summarizes the general and topic specific discussions at the workshop.

309 PLANNING AND PROCESS

Oregon state agencies have had difficulties getting into the 309 funding cycle on a timely basis in coordination with relevant agencies in other states in the region. None of the 309 projects recently funded (see Exhibit D) are integrated into agency operations; generally, they are research reports or plans. Designing 309 projects that can be made integral to an agency's ongoing operations is a tremendous challenge worthy of further discussion at this project's regional workshop.

Another problem for state agencies in the 309 funding process is the 10 percent matching funds requirement. It is significantly less than the 306 50 percent matching requirement, but still can cause problems. It was suggested that the 10 percent match is an overall regional requirement such that projects with more than 10 percent match can assist undermatched projects in meeting the requirement.

The plan to be produced by this project was analogized to a capital improvements program which would spell out needs and

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sources of funding, including but not limited to the 309 program. Other funding sources to be included in the plan are exemplified by Coastal Zone Management Act section 306 and the Minerals Management Service Environmental Studies program. 309 funding uncertainties do suggest that 309 funds be used for start-up rather than ongoing operations support in most circumstances. The plan ultimately produced by this project should include both an ongoing evaluation mechanism as well as an update process to allow adjustment of the plan for future, unanticipated developments.

The different types of projects eligible for 309 funding were reviewed with shared problems in contiguous interstate ocean and coastal areas being identified as the top priority, followed by common coastal management problems present in more than one state in the region which one state may tackle as a demonstration project. Federal-state coordination qualifies for 309 support, and the special status of the South Slough National Estuarine Reserve in the region's 309 funding picture was noted.

1989 Oregon Senate Bill 1152 if enacted would mandate that Oregon state agencies "coordinate to the maximum extent practicable" their development of: (1) coastal and ocean information systems; (2) oil spill response plans; (3) fish catch monitoring systems; and (4) management systems for ocean areas adjacent to coastal cliffs and offshore rocks and islands within the National Wildlife Refuge System, with the adjacent states of Washington and California and federal agencies. Such coordination could be carried out with support of the 309 program.

COASTAL WETLANDS

Previous 309 projects in the region have not emphasized wetlands (see Exhibit D). There seemed to be a broad state agency consensus that wetlands were an important area for interstate coordination through the 309 program. Identified needs regarding wetlands included: (1) basic research, e.g., tectonic influences on wetlands, potential sea level rise impacts; (2) projects related to mitigation as a management technique, including monitoring mitigation projects for "success" as distinguished from compliance; (3) demonstrating new wetlands management techniques; (4) identifying wetlands of regional significance for preservation including acquisition; and (5) interstate and federal-state information sharing regarding such wetlands. With four key federal agencies recently having agreed to a federal wetlands delineation manual, and "no net loss" setting in as federal wetlands policy, the time seems right for an interstate effort in the region to build regional uniformity on a federal-state and interstate basis. One possible starting point is the individual state responses to the federal Emergency Wetlands Resources Act of 1986, Public Law 99-645, which amended

the federal Land and Water Conservation Fund Act to require a wetlands component in each Statewide Comprehensive Outdoor Recreation Plan. California Department of Parks and Recreation, California Wetlands (1988) is California's response to that mandate. See also Washington Department of Ecology, Washington Wetlands: 1988 Washington Wetlands Study Report (1988) (2 volumes).

COASTAL WATER QUALITY

Past 309 projects (see Exhibit D) have emphasized the Columbia River as the region's only significant interstate estuary. Several of the Columbia River projects have addressed water quality issues. The 1986 project "Organic Waste High Energy Ecosystems" illustrates the use of 309 funds for a "common" water quality issue in the region, management of discharges from pulp and paper mills.

Oregon and Washington may soon nominate the Columbia River estuary up river to Bonneville Dam for designation as an estuary of national significance under the federal Environmental Protection Agency's National Estuary Program (NEP). Acceptance of the nomination would bring $150,000 for preparation of a designation package, and designation could bring a total of approximately $1 million over four years for planning and management. It seemed clear that a 309 role with respect to the Columbia River would remain even if the Columbia River were so designated.

Oregon's Coquille River also is the location for a pilot project pursuant to EPA's Near Coastal Waters Initiative, part of EPA's overall assessment of the status and trends of the nation's coastal waters, including ocean waters within state boundaries. A pending 309 proposal in the region would examine the respective roles and relationships of the various federal initiatives regarding coastal water quality.

Future roles for the 309 program with regard to the Columbia River include: (1) monitoring of Columbia River water quality; (2) meeting the common information needs of Oregon and Washington with respect to future development projects on the Columbia River, e.g., dioxin discharges from pulp and paper mills; (3) improved consistency between the Oregon and Washington point source discharge regulatory programs with respect to the Columbia River. Other potential 309 water quality roles include continuation of coastal water quality pilot projects such as the Coquille River one whose funding is due to expire in September of 1990 and improving the water quality assessment capabilities of states in the region. A recent California effort other ocean water quality managers in the region should review is California State Water Resources Control Board, California Ocean Plan (1988) (2 volumes).

SHORE PROTECTION AND SEA LEVEL RISE

Current and proposed 309 projects in the region include work in this area. The recent El Nino had affects throughout the region, including significant affects on ocean and bay shorelines. Global warming and associated sea level rise could have similar affects throughout the region. The Oregon Governor's Global Warming Task Force has concluded that coastal Oregon as distinguished from inland Oregon would be the most affected by predicted trends in global warming. At least two state coastal management agencies in the region, California's BCDC, and Washington's Department of Ecology, have or are beginning to build assumptions about sea level rise into their planning and permitting programs. The Corps of Engineers continues work on shoreline construction practices and FEMA, the Federal Emergency Management Agency, continues administration of the federal flood insurance program. Through September 30, 1989, that program includes the possibility of advanced payments to insured homeowners to relocate structures threatened with damage prior to any injury being suffered.

At a minimum, the 309 program could continue to play a role in funding research relevant to the information needs of coastal managers throughout the region with respect to global warming and associated sea level rise, including information regarding potential impacts on the region's wetlands. A purpose of the 309 funded efforts in this area could be to identify coastal areas in the region that need structural solutions versus those that do not need structural solutions for protection from erosional events. As a follow up to the Corps' work and related efforts on coastal construction practices, standards could be developed for application by local governments throughout the region. The Coastal Management journal plans a series of articles on local responses to global change in future issues.

COASTAL MANAGEMENT IMPLICATION OF OFFSHORE MINERALS AND HYDROCARBON DEVELOPMENT

Past 309 projects in the region have included significant work on offshore resources management issues. State and regional information needs regarding offshore oil and gas development have been identified in the 1988 and 1989 reports of the Washington Ocean Resources Assessment project, the 1988 studies of the Washington Oil Spill Damage Assessment Project, and the 1988 report of the Washington Joint Legislative Committee on Marine and Ocean Resources. Concerns in Oregon include coordinating ocean management pursuant to 309 with Oregon's ocean resources management planning task force effort whose July 1988 Interim Report also identifies research needs. With respect to 309 funded research in this area, a major task is defining the role of 309 with respect to the Minerals Management Service's

Environmental Studies program. Workshop participants generally felt that given funding uncertainties, no assumption should be made in the 309 program that scheduled MMS environmental studies relevant to the region will in fact be undertaken. Rather, projects proposed for environmental studies funding should be reviewed for possible 309 funding, with "big ticket" oceanography projects generally left to the environmental studies program. Many proposed MMS socioeconomic projects would seem suitable for 309 consideration. Specific needs identified at the workshop for 309 funding include research on marine birds and mammals and development of a regional oil spill response capability. The latter could include common map sets, protocols for bird cleanup, and research on micro-circulation of the ocean off the Oregon and Washington coasts to help guide oil spill response efforts. It was suggested that further studies of the effects of seismic exploration activities on larva and fish were not needed. Studies of the onshore impacts of particular offshore resource development initiatives were felt to be too speculative at this point in time. Generally, it was felt that 309 funding should not be driven by particular oil and gas or mineral development timetables offshore, but instead should be used to improve multiple-use management capabilities both offshore and onshore.

A major new direction for 309 in the region following up on this last point would be to use 309 funds in support of the Pacific Northwest OCS Task Force recently established with representatives from Oregon, Washington, Indian tribes, and the MMS regarding oil and gas development in federal waters off Oregon and Washington, the federal-state task force formed by MMS and Oregon regarding placer deposits in federal and state waters off southern Oregon, and the cooperative Alaska-MMS effort regarding placer deposits in state and federal waters of western Alaska. Such a use of 309 funds could justify increased 309 appropriations, and perhaps line-item appropriations in support of specific research (as occurred for the Gorda Ridge task force) identified through those federal-state efforts and the 309 program. Statutory authority for use of 309 funds to support those federal-state efforts is quite explicit in section 309 which refers to federal-state consultation procedures for the identification, examination, and cooperative resolution of mutual problems with respect to marine areas which affect the coastal zone.

With respect to black sands placer deposits, previous experience in Washington with leasing, permitting, and exploration in and near the Columbia River mouth also was noted.

No suggestions were made for using 309 funds in connection with regional fisheries management. It was felt that the North Pacific and Pacific Fisheries Management Councils already provide for sufficient consultation with the states in management of several major fisheries. For fisheries not managed by those

councils, whether any role existed for 309 over and above such alternatives as the Interjurisdictional Fisheries Act was not discussed.

INFORMATION SHARING NEEDS AND CAPABILITIES

There appears to be a continuing need to bring coastal zone managers in each state up to date on management issues and approaches in the other states in the region. This information need could be met through newsletters, computer networks, and information centers, and tied together periodically with a regional conference focussed on state experiences with common and shared management issues.

With respect to computerized information exchange, Alaska, Oregon, and Washington appear to be investing in compatible GIS systems. The current coverage of the systems in each state with respect to offshore areas is unclear. Because five different systems are used in California, the situation there is more complex. However, it was pointed out that incompatibility is not a major barrier to information exchange; rather, additional steps to overcome the incompatibility must be taken with some resulting time delays in data access.

MARINE DEBRIS

As outlined in Exhibit E attached to this report, U.S. international treaty obligations and federal law have made the disposal and handling of marine debris a major issue in the region with significant interstate features. Oregon's Department of Environmental Quality is planning to put together an action plan modeled on the October 1988 Washington Marine Plastic Debris Task Force Action Plan report. 309 funding could be used to encourage the provision of common facilities needed by mobile mariners throughout the region, the use of common signs in ports throughout the region, and other actions in support of what would basically be an interstate effort to encourage recycling of marine debris. As a complement to those efforts, 309 funding could support the distribution of information concerning the marine debris problem and its solution. Apparently, marine debris monitoring already is being carried out on a regional basis. 309 participation in the marine debris issue appears to offer an opportunity to deal with a problem that has a solution, and for which an end is in sight. 309 marine debris efforts in the region should be coordinated to pick up where a $161,000 Saltonstall-Kennedy grant involving two ports in each of the four states in the region leaves off.

OTHER REGIONAL ISSUES

Workshop participants discussed other issues of potential interest to the 309 program briefly. At least from the Oregon

perspective, problems in aquaculture facility siting such as salmon net-pen rearing were felt to be an issue of secondary interest for 309 purposes. In Oregon and California, the space requirements for such operations exceed the space available in locations where such operations would otherwise be permissible. A brief discussion of public access as a regional 309 issue focussed on questions of too much public access to sensitive resources and the use of public education programs like the one carried out on the Washington state ferries.

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ANNOUNCEMENT AND INVITATION TO INTERSTATE

COASTAL ZONE MANAGEMENT WORKSHOP

On Wednesday, May 10, 1989 beginning at 9:00 A.M. a workshop will be held at the Association of Oregon Counties Conference Room, 1201 Court Street N.E., Salem (telephone 585-8351), across the street from the Department of Land Conservation and Development's Salem offices. Staff from relevant state, federal, local, and academic entities are receiving invitations to the workshop.

A principle purpose of the workshop is to identify short-term and long-term projects regarding coastal zone management issues with interstate implications for potential funding under the federal Coastal Zone Management Act section 309 interstate grants program. The program is administered for the four west coast states of Oregon, Washington, California, and Alaska by the National Coastal Research Institute (NCRI) in Newport, Oregon. The total funds available for west coast projects can range from $250,000 to $500,000 per year, with individual projects generally not exceeding $100,000. The workshop is being held pursuant to a 309 grant to four investigators, one in each of the four states, as described in the enclosed four page project OVERVIEW document.

Your participation in the workshop is requested to aid in the identification of projects in Oregon which would qualify for 309 funding, or support under other programs, e.g., the Minerals Management Service Environmental Studies program, and be so identified in an interstate coastal zone management plan for the four-state region. Suggestions on how to reorient federal research programs toward Oregon and regional coastal management needs also are sought for inclusion in the project plan. Needs that are shared by more than one state in the region or involve an issue to which more than one state in the region is linked physically, economically, or otherwise are of special interest.

To organize discussion at the workshop, the enclosed WORKSHOP AGENDA is scheduled around some of the broad topic areas identified by the project's four investigators as containing specific potentially priority projects with interstate implications. Persons wishing to speak on particular topics within that framework or to suggest additional topics for workshop discussion should contact me at 686-3866. In addition, persons with specific recommendations are invited to prepare brief papers for discussion at the workshop, or if they are unable to attend the workshop, to submit those papers directly to

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EXHIBIT A

me. In any case, a follow-up questionnaire will be mailed to all persons receiving this invitation regardless of whether they are able to attend the workshop. Workshop and questionnaire recommendations will be factored into a four state regional workshop (currently scheduled for Thursday and Friday, September 7 and 8 at a west coast location to be announced) at which a coastal zone management plan for the region will be developed. Further details on that regional workshop will be mailed to all of this workshop's invitees as soon as they are available.

Another important purpose of the project is to identify gaps or duplication in state and federal agency responsibilities with respect to important coastal zone management issues in the region. Thus workshop discussions and brief papers on those issues are welcomed as well. Because the ocean side of Oregon coastal zone management has been intensely addressed in the 1987 Territorial Sea Management Study and the 1987 Oregon Senate Bill 630 ocean resources management task force process, it would seem useful to focus this project's attention on state and federal agency responsibilities with respect to issues not covered by that study and task force process. Finally, the project investigators have been requested by the National Oceanic and Atmospheric Administration (NOAA) to examine current computer capabilities for data and information exchange regarding coastal zone management between the four states in the region. Thus workshop invitees with experience in such interstate information exchange are encouraged to share their perspectives at the workshop as well.

With the legislature in session and other commitments, scheduling is difficult. Feel free to attend whatever parts of the workshop you can. Please RSVP your regrets only to 686-3845; otherwise, I look forward to a productive workshop with you in Salem on May 10. Lunch catered by the Old World Deli of Salem will be provided as a small thank you for your participation.

Sincerely,

Dick Hildreth

Dick Hildreth
Co-Director, University of Oregon
Ocean and Coastal Law Center
Project Principal Investigator

RGH:nf

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WORKSHOP AGENDA

Interstate Coastal Zone Management Workshop

Association of Oregon Counties Conference Room

1201 Court Street N.E., Salem, Wednesday, May 10, 1989

8:30 AM:	Informal introductions and discussions, with coffee provided.
9:00 AM:	Perspectives on the 309 interstate grants program, Dick Mathews, DLCD coastal program manager and 309 coordinator.
9:15 AM:	Overview of 309 project to develop a "Northeast Pacific Ocean Regional Interstate Coastal Zone Management Plan," Dick Hildreth, University of Oregon
9:30 AM:	Research needs and management issues regarding COASTAL WETLANDS and ESTUARIES.
10:30 AM:	Break
10:45 AM:	Research needs and management issues regarding COASTAL WATER QUALITY including nearshore ocean waters.
11:30 AM:	Review of morning discussions led by Dick Hildreth.
12 Noon:	Deli lunch provided to all workshop participants.
1:00 PM:	Research needs and management issues regarding SHORELINE PROTECTION AND SEA LEVEL RISE.
2:00 PM:	Research needs and management issues regarding the ONSHORE IMPLICATIONS OF MINERALS AND OIL AND GAS DEVELOPMENT OFFSHORE in state and federal waters.
2:45 PM:	Break

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EXHIBIT B

3:00 PM:	Computerized INTERSTATE AND FEDERAL-STATE COASTAL ZONE MANAGEMENT INFORMATION EXCHANGE on the west coast.
3:45 PM:	Discussion of other priority projects and management issues.
4:30 PM:	Workshop wrap-up by Dick Mathews/Dick Hildreth.
5:00 PM:	Workshop concludes.

LIST OF PARTICIPANTS

Interstate CZM Workshop, MAY 10, 1989

Name	Agency
Dick Mathews	DLCD
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Don Oswalt	DLCD
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Krystyna Wolniakowski	DEQ
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John Beaulieu	DOGAMI
Dee Chamberlain	ARCO
Curt Peterson	OSU/College of Oceanography

EXHIBIT C

NCRI REGIONAL CZM 309 PROJECT DIRECTORY

CZ85 Columbia River Estuary Interstate Management Plan (Fox, 1986) COMPLETED

CZ85 Interstate Living Marine Resource Information Project: Marine Fishes and Invertebrates (Bottom, 1986-1987) COMPLETED

CZ86 Columbia River Estuary Interstate Management (Fox, 1986-1987) COMPLETED

CZ86 Sea Otter Population Assessment and Ecology (Jeffries, 1986-1988) COMPLETED

CZ86 Effects of Acoustic Signals on Crustaceans (Knaster, 1986-1988) COMPLETED

CZ86 Organic Wastes in High Energy Nearshore Oceanic Ecosystems: Fates and Effects (Gonor, 1986-1988) COMPLETED

CZ87 Columbia River Estuary Hazardous Waste Spill Contingency Plan (Fox, 1987-1988) COMPLETED

CZ87 Feasibility of Remote Sensing to Identify the Aquaculture Potential of Coastal Waters (Paust, 1987-1988) COMPLETED

CZ87 Estimation of the Carrying Capacity of the Coastal Environment for Juvenile Salmon (Francis, 1987-1989)

CZ87 Fishery Resource Mapping (Starr, 1987-1989)

CZ88 Regional Sediment Dymnamics and Shoreline Stability in Littoral Cells of the Pacific Northwest (Peterson, 1988-)

CZ88 Columbia River Estuary Interstate Management: Regulatory Framework for Evaluating Sediment Quality in the Columbia River Estuary (Barnes, 1988-)

CZ88 Comprehensive Regional Ocean and Coastal Resources Management Planning (Hildreth, 1989-)

CZ88 Improving State and Federal Ocean Governance Capabilities in the Northeast Pacific (Hildreth, 1988-)

EXHIBIT D

Fran Recht

Marine Debris Issues
Interstate Coastal Zone Management Workshop
May 10, 1989, Salem, Oregon

DISCUSSION POINT
The marine debris problem is an interstate problem which could benefit from a regional management approach provided by Coastal Zone Management Act Section 309 funding.

THE MARINE DEBRIS PROBLEM:
Marine debris causes hazards to wildlife, to vessel safety, and litters beaches throughout the west coast. Additionally indications are that the economic costs associated with marine debris (though these have not been systematically studied) may be high: fifty eight of the 90 West Coast fishermen (64%) surveyed at the Fish Expo in Seattle in 1987 reported having experienced vessel problems due to plastic debris. The associated costs for both repair and lost fishing time totaled to $110,780. The continued decline of threatened animal populations, such as the northern fur seals, could result in closure of productive fishing areas in the Bering Sea, fished by fishermen from OR, WA, and AK.

NEW LAW EFFECTS ALL COASTAL STATES THRU THEIR PORTS & DOCKS:
The recently enacted international treaty Annex V of MARPOL, creates impacts on the coastal zones of all states. The treaty prohibits the disposal of all plastic materials into the ocean and restricts the disposal of other materials at sea (see attachment) and requires that all commercial ports and docks provide "adequate refuse reception facilities", so that mariners can conveniently dispose of the retained refuse. If ports or docks fail to provide these facilities vessels can be denied entry to the port (by the Coast Guard which is in charge of this treaty's enforcement). Of special concern to west coast ports is the requirement that foreign food-contaminated refuse must be sterilized or incinerated before it can be disposed of. Commercial sterilization/incineration facilities may be cost prohibitive for the smaller ports.

A REGIONAL APPROACH TO MONITORING THE MARINE DEBRIS PROBLEM HAS ALREADY BEEN INITIATED:
A regional approach to monitoring the changes in marine debris has been initiated through a data base coordinated by NOAA and the Center for Marine Conservation to collect beach clean-up information from around the country. The progress of work performed under 309 to deal with the problem might be indicated by this monitoring effort.

EXHIBIT E

HOW COULD 309 FUNDS BE USED TO IMPLEMENT MARPOL ANNEX V?
Some ideas for discussion:

NEED FOR UNIFORM REFUSE COLLECTION SYSTEM
There is a great need for uniformity in the refuse collection system established in each port, so that mariners can be assured that no matter where they land, they can quickly and easily handle their refuse disposal needs. For example, each port which serves commercial net fishermen should have a designated net reception area accessible by the vessels or a clearly defined net disposal procedure. The use of the color blue to designate refuse reception areas and recycling facilities has been encouraged throughout the west coast in order to increase the recognition of such facilities.

NEED TO ENCOURAGE RECYCLING
The increased amount of solid waste expected to be returned to port due to this law will put an extra burden on the landfills of the coastal states. The in-port recycling of vessel related refuse such as cardboard, nets, metal, wood, and glass will reduce the stress on landfills but must be encouraged and coordinated with the recycling efforts of the coastal communities. Having uniform recycling signs and/or bins available for use by each state's ports and docks would encourage the rapid establishment of such facilities and their uniformity throughout the region. Of special interest is the coordination of an inter-state net collection and recycling/reuse system.

NEED FOR STATE AND INTER-STATE MANAGEMENT PLANS
The management of marine debris is a problem shared by all four coastal states, and one that has yet only been studied as a managment issue by Washington (California has recently awarded a contract for the development of a state marine debris action plan, similar to Washington's, AK is working toward an understanding of the various agency roles through their Division of Governmental Coordination). In Oregon there is, as of yet, no coordinated marine debris action plan. In all states so far, no lead agency has been designated to deal with marine debris issue, to coordinate educational efforts or to inter-state coordination efforts. There is a need to identify these entities and to encourage joint planning and support.

NEED TO BROADLY,SYSTEMATICALLY DISTRIBUTE MARINE DEBRIS INFO
Though NOAA has established a marine debris information office to handle requests for information, funds for the mass production and dissemination of marine debris information to all west coast boaters and fishermen (e.g. through vessel licenses, permits, & registrations) or to other mariners are not available. (Some efforts have been made by both WA and OR--WA has distributed information "pollution solutions" through the Dept. of Licensing, OR has included marine debris brochure in new boater sales packet) but no comprehensive educational effort has yet been launched though educational materials and public service annoucements are available. The placement of signs in all launch ramp areas and ports to make mariners aware of the problem and the law would be of great benefit.

OTHER NEEDS/IDEAS?

June 20, 1989

Summary of Oregon Interstate CZM Workshop

I. Coastal Wetlands

a. Research needs including: tectonic influence, sea-level rise.
b. Mitigation as management technique and measured by "success" rather than compliance. Demonstrating new management techniques.
c. Identifying wetlands for preservation and acquisition.
d. Federal-state information sharing.
e. Four Federal Agencies have agreed to wetlands delineation manual and "no net loss" as federal wetlands policy.
f. Individual state responses to federal Emergency Wetlands Resources Act of 1986 - which requires a wetlands component in each Statewide Comprehensive Outdoor Recreation Plan.

II. Coastal Water Quality

a. Columbia River as the only interstate estuary in past 309 projects.
b. Coquille River as a potential 309 proposal to examine roles and relationships of federal initiatives regarding coastal water quality.
c. Future roles for 309 for Columbia River: monitoring water quality, meeting information needs of Oregon and Washington wrt future development projects, improve consistency between ORE/WA point source discharge regulatory programs.
d. California State Water Resources Control Board - model of state effort.

III. Shore Protection and Sea Level Rise

a. Regional effects on ocean and bay shorelines by recent El Nino.
b. Oregon Governor's Global Warming Task Force determined that coastal Oregon more susceptible than inland Oregon wrt global warming.
c. Sea level rise assumptions built into planning and permitting programs: eg. CA - BCDC, WA - DOE.
d. Federal efforts - COE (shoreline construction) and FEMA (insurance programs).
e. Future 309 programs to fund research on information needs for coastal managers throughout region: areas that need structural solutions, develop standards for application by local governments as a follow up to COE work.

IV. Coastal Management Implication of Offshore Minerals and Hydrocarbon Development

a. Washington ORAP, Joint Select Committee, Oil Spill Damage Assessment Project examples of significant work on offshore resources management issues.
b. Oregon concerns include coordination of ocean management pursuant to 309 and the Ocean Resources Management Planning Task Force - identification of research needs.
c. Define role of 309 wrt MMS Environmental Studies Program - suggest that 309 fund socioeconomic projects and MMS/ESP fund "big ticket" oceanography.
d. 309 funding should be use to improve multiple-use management capabilities both offshore and onshore as opposed to funding driven by single-use issues, eg. offshore oil and gas or mineral development.
e. 309 funding to support Pacific Northwest OCS Task Force and Alaska-MMS effort regarding placer deposits in state and federal waters.

f. Regional fisheries management left to Pacific Fisheries Management Councils.

V. Information Sharing Needs and Capabilities

a. Management issues and approaches need to be exchanged among coastal zone managers.
b. Use of newsletters, computer networks, information centers, and periodic regional conferences focusing on state experiences with common and shared management issues.
c. Compatible GIS system - WA/ORE/AK, whereas California has 5 different systems in use.

VI. Marine Debris

a. U.S. International treaty obligations and federal law have made disposal and handling of marine debris a major issue with significant interstate features.
b. Oregon - DEQ is putting together an action plan modelled after 1988 Washington Marine Plastic Debris Task Force Action Plan.
c. 309 funding could be used to encourage common facilities, signs and other actions on a regional basis.
d. Monitoring of marine debris is currently executed on a regional basis.
e. Saltonstall-Kennedy grant involves 2 ports in each of the four states.

VII. Other Regional Issues

a. Aquaculture facility siting only of secondary importance in Oregon.
b. Public access concerns include too much public access to sensitive areas and the use of public education programs; eg. WA state ferries.

Report on Washington State CZM 309 Workshop
June 22, 1989 Sea-Tac Airport

Attendance:

David Aggerholm, Port of Seattle
Bob Butts, Wa. Legislative Staff
Dee Chamberlain, ARCO Environmental Sciences
Mark Freeburg, Natural Resources Consultants
John Gabrielson, EPA, Near Coastal Waters
Bob Goodwin, Washington Sea Grant
Mike Gruber, DNR
Jim Lehman, Chamber of Commerce, Pacific County
Don Peterson, DOE, Shorelands Planning
Chris Platt, Sierra Club
Jim Sayce, Pacific County Planning
Gary Shigenaka, NOAA, Office of Marine Assessment
Terry Swanson, DOE, 309 Coordinator
Mary Lou Mills, WA Department of Fisheries
Bob Rose, DNR
Marc Hershman, Professor, UW-IMS
Greg McMurray, Deputy Director, NCRI

Purpose and Scope of Meeting

The purpose of the in-state meeting was to explore how the CZMA 309 program can help to improve management of coastal resources in the West Coast region - California, Oregon, Washington and Alaska. Although the perspective was regional, we asked what regional information or activities would be of most help to Washington state and it's problems and concerns.

Regional CZM issues are those that address shared or common CZM problems. Shared problems are those that cross state boundaries or affect two or more states. Examples are the Columbia River estuary and offshore tanker traffic that moves between states.

Common problems are more numerous. In one sense all problems are common ones since each state faces virtually the same set of coastal issues. However, for some problems a regional approach would make more sense because:

* Federal policy encourages uniformity among the states.
* Management problems are very new and there is a high degree of uncertainty.
* The common problems are of such high priority that action among states can improve or expedite resolution of the problem.

Discussion

Coastal Wetlands, Estuaries and Water Quality

1. Columbia River estuary. This estuary is one of the clearest examples of a shared coastal zone resource among two of the coastal states in the region. Because of a proposal that it be designated an "estuary of national significance" by EPA, it is getting increased attention from policy makers. Added attention from the 309 program could support EPA's efforts. It was noted that the Columbia River has received considerable scientific and management attention over the years from a variety of agencies, and that 306 and 309 funds have been used to support bi-state planning in the past. In comparison, Willapa Bay and Grays Harbor have received less attention, but may be more important to Washington's coastal residents.

2. Mitigation. A variety of problems were identified with the concept and practice of environmental mitigation. The mitigation policies in Oregon and Washington differ, and state-level policies often do not align with those of federal agencies. Mitigation standards are weak; greater precision is needed as well as careful evaluation of implementation. Methods of doing mitigation, such as restoration and wetland creation, need more research and development. And, the mitigation banking concept is not well developed. More work is needed in technical issues, and in finding ways to fit banking into the current regulatory system.

A variety of ways to improve mitigation practice were set forth, some of which could be addressed in the 309 program. Mitigation in highway projects and in freshwater areas may provide models applicable to marine waters. Improved coordination and information sharing among permitting agencies, and among permit seekers, could improve the practice. The 309 program could assist here by providing a continuing education and information exchange program among practitioners.

3. Non-point sources of pollution. As urbanization in rural coastal areas continues, problems with water quality will grow and effects will be felt on shellfish resources, and marine water quality in general. Increases in non-point sources of pollution can result from failed septic system, poor drain field siting, etc. Zoning may not be sufficient in the future. The challenge is to find ways to control non-point sources while meeting desires for community development. Since federal law has no "teeth" for dealing with non-point source pollution, state and local government must do so. The 309 program may be able to aid in studying how this could be done.

4. Other water quality and related issues. Four additional subjects were raised for consideration.

Oregon and Washington both face problems of competition between the oyster and crab industries, centering on use of

pesticides in marine waters to eliminate ghost shrimp populations.

Dumping of shipwater ballast in harbors and estuaries can introduce unwanted marine species and have detrimental effects.

Use of the Coastal Barriers Resources Act on the West Coast to protect relatively undeveloped coastal regions could be a means to introduce ways to prevent nonpoint sources of pollution.

Offshore seafood processing generates wastes and is becoming a significant water quality problem. The scope of the problem needs more research and new technologies may be needed.

Generally, 309 may be an especially appropriate program for addressing emerging problems common to two or more states where there is a need for definition and exploration of alternatives. It was noted, in hindsight, that the problems associated with net pen salmon aquaculture should have been studied by the four states about five years ago. Had this been done, the states may have been better prepared to deal with the issue.

Shore Protection and Sea-level rise

Deciding how government should respond to coastal hazard situations is difficult. Many people accept the risks and are willing to live with them. Most people are issue-specific and cannot appreciate and accept a long-term preventative strategy. Hazards are greatest in rural areas where planning capabilities and funding levels are low. Some resources or areas are highly vulnerable should sea-level rise accelerate, wetlands, hazardous sites near the shore and dredged materials exposed to water and likely to erode.

Two strategies were discussed that may be appropriate for 309 attention.

Information exchange and dissemination. Exchange of experiences among practitioners in CZM and other programs could be enhanced. However, funds for out-of-state travel are hard to obtain. Other mechanisms for exchange are needed.

Information dissemination to the public is key, so long as it is issue specific. What are the risks and where are the high risk zones?

Inventory. Maps may be needed that show the high risk zones, and the effects of sea level rise based on certain assumptions. New forms of maps may be necessary, with particular attention paid to wetlands. Mandatory disclosure of risk information could be considered.

Shoreland Use Allocation

Public access to the coast. A key question is how to measure the adequacy of public access. Is the quantity sufficient? Are combined sites needed? Is the quality adequate or is better maintenance, signage and management necessary?

Information on ways to do coastal access could be shown in handbooks. Ongoing management of access sites may be needed and

the California Accessways experience with non-profits may be worth studying.

West Coast officials could consider common access signage throughout the range, ~~and~~ interpretation could emphasize comparable and contrasting coastal features for the West Coast as a whole.

Ocean beach management may need special attention, for usage, signage and interpretation of natural features. This might be approached regionally.

Innovative ways to get public access to public and private tidelands should be studied.

Fishing industry support. Overall shoreland needs for commercial fishing fleets, now and in the future, must be studied. This is a regional issue because fleets change and move among states easily. Competition with recreational boating for shore space and fishery resources is severe.

Submerged lands and water surface management. Control over water uses and the issue of water dependency is a common problem on the West Coast. Comparative study of the ways urban waterfronts are allocated, through regulation or leasing would provide useful lessons. Further, the effectiveness of state mechanisms for dealing with submerged land zoning would be useful.

Aquaculture. Siting aquaculture facilities continues to be contentious. Comparison of state mechanisms for dealing with the problem is needed. A particularly useful role for 309 would be to ask what are the emerging aquaculture technologies and how can we prepare in advance to manage the siting and environmental issues?

Demographics. What are the changing human settlement patterns in coastal areas and how can we better articulate the planning problems that might arise?

Rural coast industrialization. Will new industries seek sites in rural coastal areas? What state/local mechanisms are available to guide these industries since their impacts are normally regional.

Bill → Offshore Issues

Offshore oil and gas development. There is a high level of interest in how state and local governments influence offshore oil decisions, and in the particular management techniques available to minimize impacts and recover costs. Comparative study of the following issues would be useful:

* offshore convergence zones where fisheries resource would be high and damage from spills great

* estuarine buffer zones designed to keep potential spills from entering estuaries - requires study of exchange phenomenon at mouth of estuary

* ways to site offshore platforms that minimize damages and risks

* fishing gear conflicts with offshore oil equipment and how to minimize conflict and settle claims

* benefits and costs of mandatory pipeline corridors and location of onshore facilities

* use of lease sale stipulations to assert state interests: evaluation of stipulations and their implementation

* ways local government can get the most out of offshore development

Oil transportation. Debate continues about the best technology for transporting oil. What are the benefits and costs of an increase in designated shipping lanes and greater surveillance? Should use of many tankers be replaced with pipelines and major oil offloading ports?

Oil Spills. One strategy for larger spills is to regionalize oil spill response. Federal and industry developments will probably lead the way, but state and local input with a regional perspective may be needed.

For smaller spills, such as those associated with the transfer of oil from barge to ship and other routine harbor operations, better management approaches are needed and could be addressed regionally.

Siting energy-related facilities. Finding the best sites for shore-based facilities, such as graving docks, requires sophisticated planning techniques. Comparative study of approaches are needed and could be addressed regionally.

Offshore mining. At least 3 of the region's states have potential for offshore hard mineral mining. What are the economic and environmental issues likely to arise and how can they be managed?

Marine debris. Consideration should be given to a regional approach to management of plastic and other wastes from boats since the fleets cross state boundaries and enter different ports. There may be opportunities for standardized facilities, signage, etc. that improve efficiency and reduce costs.

Atlases. A regional atlas for the 200 mile EEZ may be a useful project. Oregon's atlas project for it's EEZ may be a useful model.

Bold — Other Issues

The measurement and use of cumulative effects in coastal decision-making needs more development and it is a common problem. Permit decisions on a project-by-project basis must be able to account for cumulative effects.

GIS systems can assist in making coastal decisions. The systems that are emerging should be studied and ways for them to "talk" with one another should be explored.

APPENDIX D

West Coast Regional Coastal Zone Management Workshop
Asilomar, California
September 10-12, 1989

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UNIVERSITY OF OREGON

West Coast Regional Coastal Zone Management Workshop
Asilomar, California
September 10-12, 1989

WORKSHOP AGENDA

SUNDAY, September 10

3 P.M.	Check into Assigned Lodging through Asilomar Registration/Administration Building
6-8 P.M.	Get Acquainted Catered Barbecue Dinner at Asilomar Barbecue Area

MONDAY, September 11

7:30-8:30 A.M.	Breakfast in Assigned Dining Room at Asilomar's Crocker Dining Hall
8:30 A.M.	Assemble at Asilomar's Sanderling Conference Room for Workshop Commencement
8:45 A.M.	Welcome and Project Background Earle Buckley, Director, National Coastal Research Institute (NCRI) (draft Plan Section I and Appendix A)
9:00 A.M.	Framework for 309 Planning (OCRM 309 Guidance; draft Plan sections II, III, VI, VII) Discussion Leader: Dick Hildreth
10:00 A.M.	**Break for Coffee/Tea**
10:15 A.M.	Coastal Wetlands, Estuaries, and Nearshore Waters as Regional Concerns (draft Plan section IV.A.) Discussion Leader: Marc Hershman
11:00 A.M.	Coastal Hazards: Short Term and Long Term (draft Plan section IV.B.) Discussion Leader: Jim Good

12-1 P.M.	Lunch in Assigned Dining Room at Crocker Dining Hall
1:00 P.M.	Reassemble at Sanderling
1:15 P.M.	Regional Shoreland Use Allocation Issues (draft Plan section IV.C.) Discussion Leader: Jon Isaacs
2:00 P.M.	Regional Ocean Resources Management Issues (draft Plan section IV.D.) Discussion Leader: Biliana Cicin-Sain
2:45 P.M.	Break for Coffee/Lemonade
3:00 P.M.	Regional Information Exchange Capabilities and Opportunities (draft Plan section V.) Discussion Leader: Jon Isaacs
4:00 P.M.	AFTERNOON BREAK
6-7 P.M.	Dinner in Assigned Dining Room at Crocker Dining Hall

TUESDAY, September 12

7:30-8:30 A.M.	Breakfast in Assigned Dining Room at Crocker Dining Hall
8:30 A.M.	Reassemble at Sanderling
8:45-10 A.M.	Group Discussion of Alternative Approaches to a Regional Plan (draft Plan sections VI and VII)
10-10:15 A.M.	Break for Coffee/Tea
10:15-11:30 A.M.	Regional Plan Discussions Continued: Priority Projects and Funding Sources
11:30 A.M.-12 Noon	Break for Check-Out by 12 Noon Deadline
12-1 P.M.	Lunch in Assigned Dining Room in Crocker Dining Hall

END OF WORKSHOP

UNIVERSITY OF OREGON

West Coast Regional Coastal Zone Management Workshop
Asilomar, California
September 10-12, 1989

DRAFT OUTLINE OF NORTHEAST PACIFIC OCEAN REGIONAL INTERSTATE COASTAL ZONE MANAGEMENT PLAN

I. Introduction

A. Brief background on project and project objectives

B. Recent regional uses of 309 funds (see Appendix A attached)

1. Research relevant to management in more than one state

2. Columbia River estuary planning and management

C. Organization of plan

II. Background for targeting substantive categories

A. Overview of the "state of the coastal zone" of the region (natural resources, environmental quality, development activities)

B. General description of research, management, and planning goals in the region

C. Listing of ongoing and proposed state and federal research and planning programs especially relevant to 309:

1. CZMA 306
2. Sea Grant
3. NCRI, e.g., CZM Remote Sensing User's Guide
4. MMS Environmental Studies
5. Corps of Engineers Shore Protection
6. FEMA Mapping
7. EPA National Estuary Program
8. Saltonstall-Kennedy grants
9. Coastal Barrier Resources Act
10. Interjurisdictional Fisheries Act

11. Pending regional marine research, monitoring, and coastal protection legislation, e.g., S. 1189
12. USGS/NOAA EEZ Seafloor Regional Mapping Effort
13. NOAA Marine Sanctuary/Estuarine Research Reserve Programs

III. Targeting Substantive Categories: A General Framework

A. The Columbia River and contiguous state and federal ocean waters stretching from Alaska to California are the region's principal shared interstate resources with interstate and federal-state linkages important to the 309 program (also wetlands--migratory birds).

1. De-emphasize Columbia if it goes into NEP? But see Nat'l 309 Guidance which gives priority to NERR's (Padilla Bay, S. Slough, Elkhorn Slough, Tijuana River) and NEP's with management confs. (other W. Coast NEP's, Puget Sound, S.F. Bay, Santa Monica Bay are not interstate)

B. Thus also expect continuing emphasis in region's 309 program and this plan on coastal management problems that are faced by more than one state in the region even though they do not involve a shared interstate resource. For such common problems, a regional approach often makes sense where:

1. Federal policy encourages uniformity among the states in responding to the common problem

2. The common problem is new or emerging and there is a high degree of uncertainty creating a need for definition and making consideration of alternative responses timely

3. The common problem is of such high priority that action among the states can improve or expedite resolution of the problem

IV. Prioritized list of data needs and studies (final plan will name agencies who will <u>implement</u> any research projects recommended and possible alternative funding sources).

A. Coastal Wetlands, Estuaries, and Nearshore Waters

1. Immediate (1 - 2 years, with budget and potential funding sources)

a. Implementing a "no-net loss" approach in wetlands management (see 1989 Ore. S.B. 3)

b. Mitigation of development impacts on important coastal resources, e.g., wetlands--

what works and what doesn't--any 309 role beyond education and information exchange?

c. Corps of Engineers advanced identification of wetlands program

d. State 404 assumptions

2. Mid-term (3 - 5 years)

a. Integrating coastal water quality protection into CZM, especially regarding non-point sources (remote sensing as potential enforcement tool)

b. Closing the gap between water pollution regulatory standards and currently available technology

3. Long-term (6 - 10 years)

a. Coordinated 3-state NERR work--recall Darienzo's work in S. Slough

B. Coastal Hazards: Short Term and Long Term

1. Immediate (1 - 2 years, with budget and potential funding sources)

2. Mid-term (3 - 5 years)

a. Regional response to FEMA interim demolition and relocation erosion regulations (53 Fed. Reg. 36973) if extended beyond 9/30/89

3. Long-term (6 - 10 years)

a. Support work (at least information exchange) on common responses to sea level rise as information develops--see BCDC as a model and consider possible role for Coastal Barrier Resources Act

b. Also support information dissemination to the public?

C. Shoreland Use Allocation (public access, aquaculture facility siting, etc.)

1. Immediate (1 - 2 years, with budget and potential funding sources)

2. Mid-term (3 - 5 years)

a. Shoreland needs of commercial fishing fleets which are mobile throughout the region, and their competition for space with recreational boating

b. Submerged land zoning and alternatives

c. Research on how to factor cumulative effects on coastal resources into project specific decisionmaking

d. Develop regional aquaculture/mariculture siting criteria and regulatory requirements

3. Long-term (6 - 10 years)

a. Develop common public access signage throughout the region with interpretation comparing and contrasting coastal features of the West Coast as a whole

b. Regional coastal demographic research

c. Rural coast industrialization in the region

d. Regional EEZ atlases--see NOAA atlas projects

D. Regional Ocean Resources Management Issues (offshore oil and gas and seabed hard minerals development, implementation of MARPOL Annex V, enhancing regional oil spill response capabilities, offshore processing of seafood wastes, etc.)

1. Immediate (1 - 2 years) with budget and potential funding sources

a. Regional oil transportation regulation and spill response--Exxon Valdez from Alaska to San Diego (strongly supported by Western Legislative Conference Ocean Resources Committee) (1989 OR, WA, AK legislatures have appropriated funds and revised laws in this area; AK has regionalized oil spill response w/i AK; Cal. Assembly Select Committee on Oil Spill Response)

(1) Research on offshore convergence zones where fisheries resource is high and potential damage from spills great

(2) Studies of exchange phenomena at estuary mouths to develop buffer zones designed to keep spills from entering estuaries

(3) Interstate agreements covering emergency training, management, and response

(4) Develop regional minimum petroleum transportation safety standards

(5) Inventory West Coast spill response capability

(6) Spill technology assessment

(7) Vessel traffic system assessment

b. MARPOL V implementation consistently throughout region--S/K an alternative funding source?

(1) Technical assistance to ports and communities

c. General goal: promote regional uniformity wherever possible

2. Mid-term (3 - 5 years)

a. Responding to federal, industry, and other regional pressures for federal-state approaches such as the DOI/WA/OR/Tribes oil and gas task force; DOI/OR seabed placers task force; AK cooperative effort with DOI re marine placers offshore Nome (OCRM Spring 1989 309 Guidance: "Particular consideration is given to the establishment of Federal/State consultation procedures"; existing "interstate" (and federal-state?) entities have priority over temporary ones created pursuant to 15 CFR Section 932.12)

b. Research on management techniques to minimize impacts and recover costs:

(1) Siting offshore platforms and major onshore facilities, e.g., graving docks

(2) Benefits and costs of mandatory pipeline corridors

(3) Fishing gear conflicts with offshore oil and mining equipment: minimizing conflict and settling claims

c. Develop uniform regional minimum standards for state and federal oil and gas development

3. Long-term (6 - 10 years)

a. Three federal-state task forces for multiple-use planning in the 3 - 12 mile extended territorial sea: Cal. - Fed 3-12 Task Force; OR/WA - Fed 3-12 Task Force; and AK - Fed 3-12 Task Force

b. See statute and legislative history for support for using 309 funds for fed-state consultation regarding contiguous ocean areas.

V. Regional CZM Information Exchange

A. General Categories of Information Transfer

1. Innovative state legislation and regulations (promote regional uniformity where possible)

2. Relevant regional federal agency, state agency, and academic (e.g. Sea Grant) research results

3. State-to-state technical assistance (e.g., personnel exchanges)

4. Public information (promote regional view of common problems wherever possible)

B. Specific Information Exchange Opportunities

1. Oil Spill Response Information

2. Information Exchange through MMS E Studies Program, PACFIN

3. Oregon Ocean Task Force 7/89 Research Needs draft: MOA's with relevant federal agencies to take advantage of available digital data bases, e.g., USGS/NOAA EEZ seafloor mapping projects

4. Emerging state and federal GIS systems should be studied and ways for them to "talk" with one another explored further

5. Information exchange especially important to Alaska regarding CZM approaches in the other 3 states

6. Based on Alaska experience with Exxon Valdez spill, what about short-term personnel exchanges between state and federal agencies?

7. Could hold regional CZM conferences in alternate years to the national "Coastal Zone" conferences (compare annual Pacific Basin CZM conferences)

VI. Alternative Regional CZM Plans: The results of our work and our judgments about alternative approaches NCRI and the states could consider. We can conceive of modest, moderate and radical departures from current practice. (Each alternative should address coordination with ongoing programs, better meshing of 306 and 309, prioritization among substantive categories.)

A. Question: What should be the principal future thrust(s) of west coast 309 program? Research, planning, management, information transfer, "coordination," etc? (Per OCRM's Spring 1989 309 Guidance: "interstate planning in coastal management through coordination")

B. Challenge for the future: better integration of 309 funded projects into agency operations, specifically better meshing of 309 and 306

1. Meeting the challenge

a. National level

(1) Reducing uncertainty in 309 appropriations

(2) Greater predictability in regional allocations of 309 appropriations

b. Regional level

(1) Meshing 309 planning and funding with state CZM agency planning and funding under CZMA 306 and state appropriation cycles (could periodically house a 309 planner/expediter at NCRI on a rotating basis from one of the 4 state CZM agencies)

(2) "Block grant" approach setting aside dollar quantities or %'s of regional 309 funds for targeted substantive categories

(3) Could assume a minimum 309 $ amount to be allocated pursuant to the plan each year ($200 K) and use excess for flexibility: new issues, great proposals

(4) Continue regional competitive RFP approach for all projects?

C. Coordination recommendations regarding other relevant state and federal programs listed in II.C. above, e.g., consider planned MMS environmental studies program projects for 309 except big ticket items

VII. Plan Amendment Procedures: Changes in issues, changes in priorities

A. Once a year each 309 coordinator would convene a workshop co-sponsored by the state's 306 program involving state and federal agencies and private and public interest groups analogous to the "instate meetings" that were held to produce this plan

(1) This workshop would review current issues relevant to both the state's 306 program and the region's 309 program and prepare a state assessment of the 309 program for the past year

(2) Regarding the 309 program, workshop participants would develop proposed amendments to this plan for consideration by the regional CZM board at its annual meeting

B. At the annual regional CZM board meeting, plan amendments developed at the individual state workshops and other proposed amendments would be reviewed for final adoption by the board

VIII. Bibliography (by recommended project area)

IX. APPENDICES (in joint volume with ocean governance project)

A. Directory of Past 309 Projects in the Region

B. Sample Questionnaire

C. 4-state mailing lists

D. Summaries of instate meeting in each state

E. Summaries of questionnaire responses in the 4 states

F. OCRM Spring 1989 309 Guidance

APPENDIX E

BIBLIOGRAPHY
FOR
PACIFIC COAST REGIONAL
COASTAL ZONE MANAGEMENT PLAN

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